THE COTTON GIN AND OIL MILL

PRESS

52nd YEAR

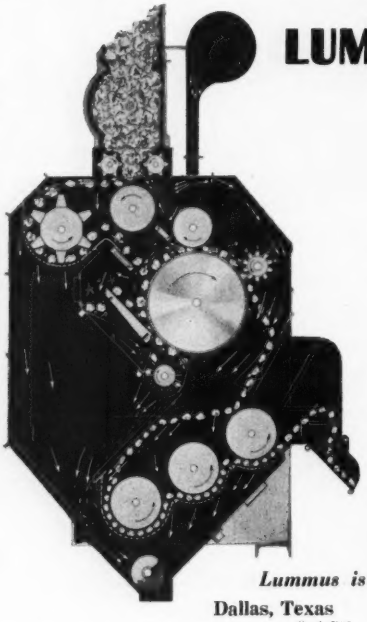
NOVEMBER 24, 1951

THE MAGAZINE OF THE COTTON GINNING AND OILSEED PROCESSING INDUSTRIES

FORMERLY THE COTTON AND COTTON-OIL PRESS

Special Mechanization Conference Reports

ADDRESSES
PANEL DISCUSSIONS
FIELD DEMONSTRATION



LUMMUS THERMEX FEEDER

Removes hulls without crushing. Has very efficient After Cleaner. Hot Air Attachment also removes fine trash. Excellent companion for Multi-Jet Gin and Super-Jet Cleaner.

Completely accessible. Easy to operate and maintain. Permanently lubricated.

Write for Bulletin No. 618

LUMMUS COTTON GIN CO.

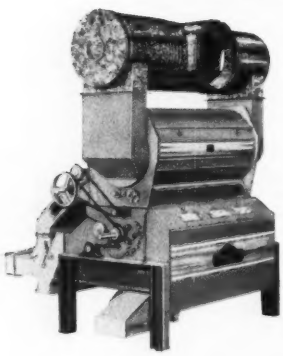
Lummus is doing more to put gins on a better paying basis.

Dallas, Texas **Columbus, Georgia,** **Memphis, Tennessee**

More Than 1800

CONTINENTAL Lint Cleaners

Now in Service



Latest and the greatest addition to Continental's complete, time-tested line of gin machinery is this Lint Cleaner, first manufactured for the market in 1948. It has filled a longfelt need for a cleaner that would reduce to a minimum the margin between hand-picked and mechanically gathered cotton.

Improves any grade of cotton regardless of trash content.

Removes motes, hulls, leaf particles with maximum efficiency.

Consumes very little power.

Write for Bulletin 202 giving detailed description.

CONTINENTAL GIN COMPANY

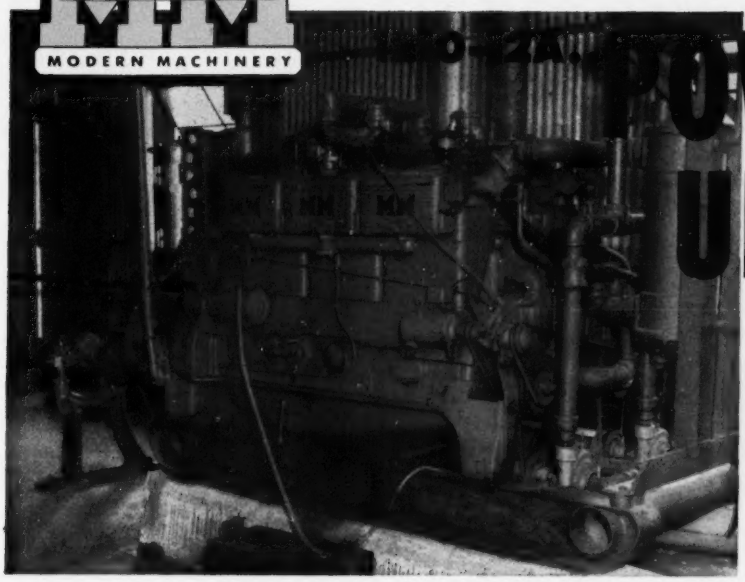
BIRMINGHAM, ALABAMA

ATLANTA • *DALLAS* • *MEMPHIS*

Entered as second-class matter February 4, 1905, at the Post Office at Dallas, Texas, Under Act of Congress of March 3, 1897

MM
MINNEAPOLIS-MOLINE
MODERN MACHINERY

1210-12A POWER UNITS



The Beene Planting Company's gin is operating the following with *dependable, low-cost power* from two MM 1210-12A engines:

5—80 Saw Continental Model F-3 Brush Gins
5—80 Saw Continental 4-X Huller-Cleaner-Feeders
1—5-80 Saw Model "40" Condenser
1—5-80 Saw Submerged Lint Flue System
1—Continental Double Box Simplex Hydraulic Press
1—Continental E J Mechanical Tramper
1—Conveyor-Distributor Elevating System
1—45" Suction Fan
1—72" Revolving Drum Separator
1—Pure Seed Blower with Drag Belt
1—Seed Scale
2—Roots-Connersville Pressure Blowers
3—72" Continental Impact Cleaners
2—Continental Triple Saw Burr Machines
2—Continental 4-Trough Driers
2—45" Hot Air Fans
1—30" Hull Fan with Intake and Discharge Pipe
1—35" Hull Fan with Intake and Discharge Pipe
1—Line of Hull and Mote Conveyors under Gins
1—Add'l 72" Revolving Drum Separator
1—Add'l 50" Revolving Drum Separator

See Your MM Dealer-Distributor or Write

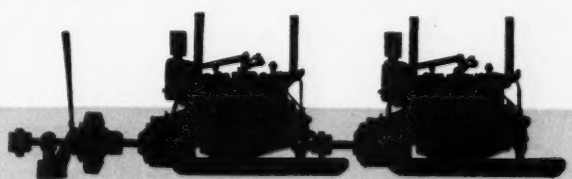
the Modern ..LOW COST... MULTIPLE ENGINE INSTALLATIONS

Two MM 1210-12A engines furnish complete power for the large modern gin plant of the Beene Planting Company at Bossier City, Louisiana.

Since power requirements for their gin stands and the cleaning and drying equipment were about the same, two 1210-12A's were the ideal installation. A single 1210-12A easily drives the gins while the other 1210-12A supplies ample power for all the cleaning and drying equipment. This resulted in very low-cost installation due to low cost per hp of MM engines and minimum installation work.

MM's high production and standardized parts make possible low cost per hp and the best in parts service. Gin operators find that by the use of the front power take-off and master clutch they can add MM single engines or convert to MM grouped engines that provide the right amount of power *at the least cost!* In addition they are able to use the lowest cost fuels available because MM 1210-12A engines are factory equipped for natural gas or LP gas. Built-in gear reductions provide choice of power shaft speeds for direct drive application to eliminate belts, pulleys, idlers, and bearings.

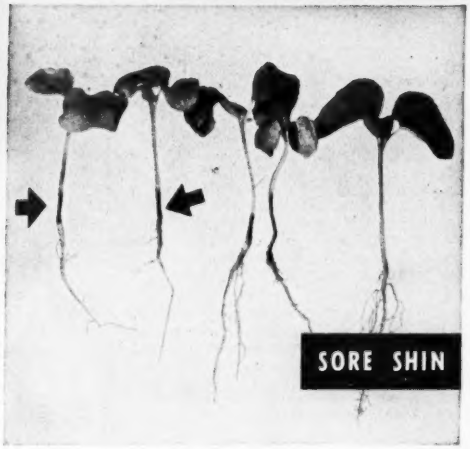
Plan now to see your nearby MM representative for complete facts on lowest cost per hp and a grouped engine layout to fit your floor plan.



MINNEAPOLIS-MOLINE
MINNEAPOLIS 1, MINNESOTA

YOU benefit when YOU help

PREVENT SEED ROT→ SORE SHIN→



PROPER TREATMENT PAYS MANY WAYS:

You help the growers and yourself when you make sure cottonseed for planting is carefully treated with "Ceresan." For "Ceresan" protects both the seeds and the seedling plants from seed rot and sore shin, diseases which have been on the increase in some areas. And "Ceresan" also heads off other diseases, including seed-borne anthracnose and angular leaf spot.

Better yields are the pay-off for growers who get good disease control and good stands of cotton from your "Ceresan" treated seed. In fact, cotton yields often increase as much as 40 per cent from seed treated according to the "Ceresan" chart at the right.

More cotton to gin as well as repeat business in seed treating are the benefits of doing a thorough job of "Ceresan" seed treatment. When your operators apply the right amount of "Ceresan," seed treatment pays off for you and your customer on all cottonseed worth planting.

For full details *on effective seed treating, ask for Du Pont's free handbook "How to Treat" (A-7585). For your copy, write Du Pont, Semesan Section, Wilmington, Del.*

• With all chemicals always follow directions for application. Where warning statements on use of product are given, read them carefully.

Listen to Du Pont "Cavalcade of America" Tuesday Nights, NBC Network

RECOMMENDED RATES OF DU PONT SEED TREATMENT

MECHANICALLY DELINTED COTTONSEED

2% "Ceresan"	Dry	6 oz. 100 lbs.
"Ceresan" M	Dry or Slurry	3 oz. 100 lbs.

ACID DELINTED COTTONSEED

2% "Ceresan"	Dry	4 oz. 100 lbs.
"Ceresan" M	Dry or Slurry	2 oz. 100 lbs.

FUZZY COTTONSEED

2% "Ceresan"	Dry	9 oz. 100 lbs.
"Ceresan" M	Dry or Slurry	4½ oz. 100 lbs.

DU PONT
REG. U.S. PAT. OFF.

CERESAN®

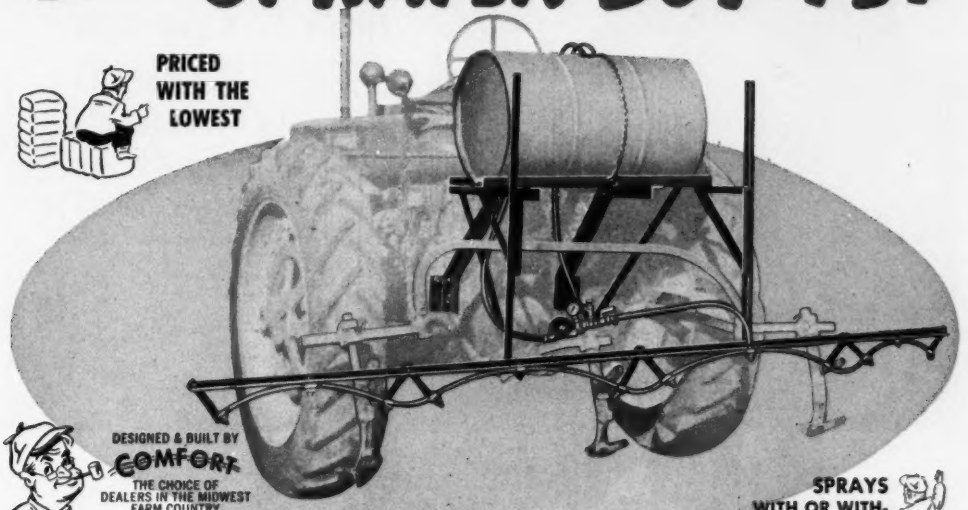
Disinfects and Protects Seed

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

NOW FOR THE COTTON COUNTRY

THE GREATEST SPRAYER BUY YET

PRICED WITH THE LOWEST



DESIGNED & BUILT BY COMFORT
THE CHOICE OF DEALERS IN THE MIDWEST FARM COUNTRY

SPRAYS WITH OR WITHOUT CULTIVATOR

COMFORT
T. M. Reg.
CULTIVATOR MOUNT
COTTON SPRAYER
PATENT PENDING

1. Easy to mount with or without cultivator.
2. Engineered for attachments for other crop spraying. Adjustable nozzle spacing for any width row. Adjustable boom height.
3. Extension booms available to convert standard 2-row model to 4 or more rows as illustrated above.
4. Complete with adjustable drops for between-row spraying.
5. Hollow cone tips (specified by cotton spraying experts) standard equipment.
6. Full floating gear operated positive pressure pump.
7. Chemical resistant hose. Rugged construction throughout.
8. Complete—nothing else to buy. Uses any standard 55 gal. drum (not furnished.)

Dealers Prefer The Leader in Sales. In independent surveys conducted by a leading dealer publication and 7 leading state farm papers, more dealers in 9 leading farm states expressed a preference for COMFORT Sprayers over any of more than 70 other brands.

That's pretty good evidence this new COMFORT Cotton Sprayer is worth investigating yourself. It's tested and proved, backed by a dependable manufacturer, and priced to attract customers. So get the facts on COMFORT today.

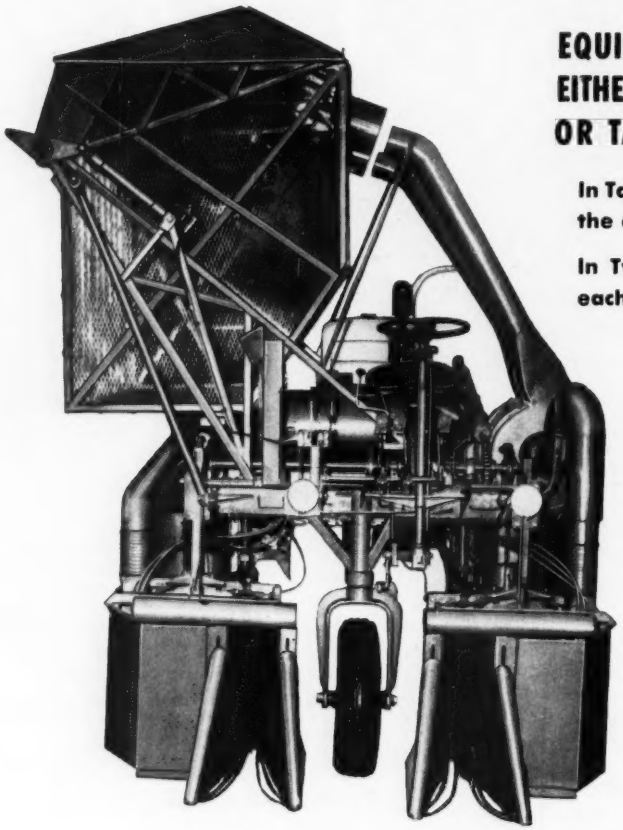
MAKERS OF COMFORT
MULTI-PURPOSE FARM SPRAYERS
BOOM JET SPRAYERS for INSECTICIDE and RIGHT-OF-WAY SPRAYING
COMPLETE PARTS and ACCESSORY SELECTION

A GENUINE COMFORT PRODUCT

Order through Your Jobber or Write Direct

Manufactured by
COMFORT EQUIPMENT COMPANY
[illegible] Kansas City 1, Mo.

SPEEDING COTTON HARVESTS... RUST COTTON PICKER



EQUIPPED TO OPERATE EITHER AS A TWO ROW OR TANDEM MACHINE

In Tandem (one unit behind the other) 1 acre per hour

In Two Row (one unit on each row) 2 acres per hour

- ★ **Vastly improved in the last 3 years.**
- ★ **Low operating and maintenance cost.**
- ★ **Considerate to green bolls.**
- ★ **Harmless to plant itself.**
- ★ **Gets less trash than any other cotton harvester.**
- ★ **Easily maneuverable (because weight is light, evenly distributed) will turn on either drive wheel.**
- ★ **Accessible, easy to repair.**

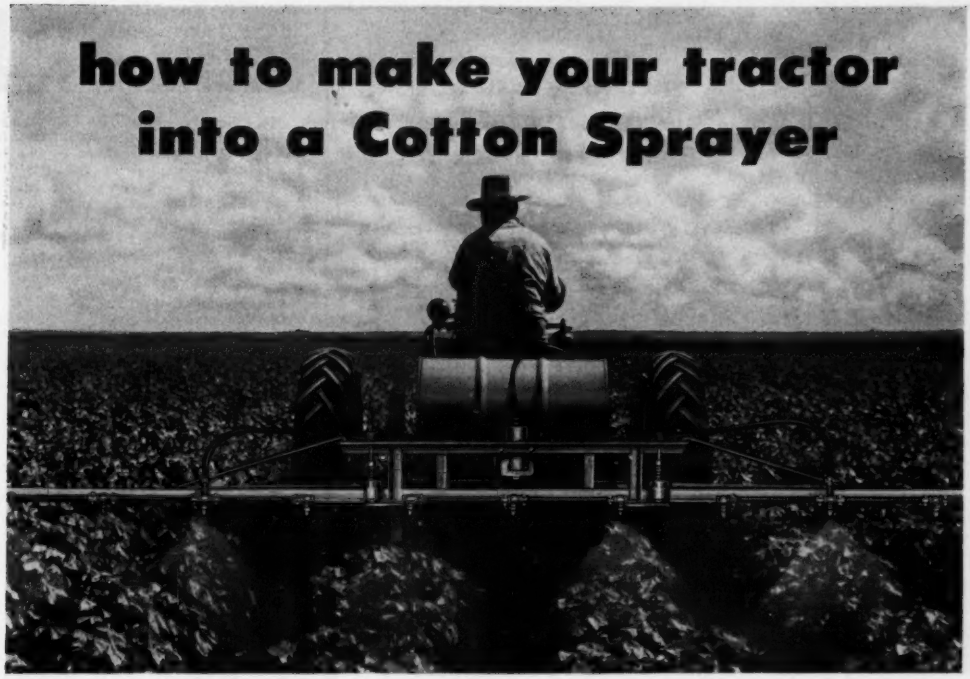
For complete information, write . . .

BEN PEARSON, INC.

(MAKERS OF THE RUST COTTON PICKER)

PINE BLUFF, ARKANSAS

how to make your tractor into a Cotton Sprayer



This Myers rear-mounted tractor sprayer is specially designed to provide cotton growers with an efficient, low cost power sprayer for cotton crops. It is also adaptable to all other low pressure spraying needs, and does not impair the efficiency of the tractor for regular duty.

The entire sprayer assembly is easy to mount and versatile. Gear pump is mounted on tractor power shaft. A manifold consisting of pressure gauge, relief valve and control valves to boom discharge can be located within reach of operator. Spraying pressures range from 20 to 100 lbs.

The boom is carried on the axle and drawbar. It is equipped with a spring safety hinge to prevent breakage. Boom widths are for 2, 4, 6 or 8 rows and are adjustable for rows from 32″ to 42″. Wings on the 4, 6 and 8 row booms may be folded back for transporting with tractor. Fittings permit the use of either drop pendants or overhead nozzles. By changing nozzles, the same equipment can be used to apply defoliants when the cotton crop is ready to harvest or for weed or pest control in other crops. See your Myers dealer for complete information or fill out and mail coupon today.

A complete line of power sprayers — 2-wheel, 4-wheel, and skid types for use with guns or booms. Pressures from 30 to 800 lbs.

FREE CATALOG on sprayers. 20 pages of photos, specifications, helpful information on spray equipment.

8009-L1

THE F. E. MYERS & BRO. CO., Ashland, Ohio

Please send: ☐ Bulletin on Tractor-Mounted Sprayer ☐ Catalog on Myers Spraying Equipment

Name_____

Address_____

Town_____

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Servis

TWO NEW, HARD WORKING IMPLEMENTS—THAT CAN DO A REAL JOB FOR YOU

SERVIS MULTIPLE-BLADE STALK SHREDDER

Three horizontally rotating blades, four stationary blades cut full 57" swath. Sturdy rear hitch for disc harrow permits shredding and turning under toughest stalks in one operation to enrich soil. Excellent for cutting cotton, corn, broom corn, sage brush, wildrose, pecan sprigs, etc., with minimum power.

"WHIRLWIND" TERRACER AND SERVIS ANGLEDOZER

The "Whirlwind" builds one mile of broadbase or channel type Government terrace in 10 hours. More than 5,000 in service. Over 10 years proven quality. Excellent for wide drainage ditches. Servis "Angledozer" is a sturdy multi-purpose implement easily attached and operated for making fills, road work, and as snow plow.

HUDSON AUTOMATIC ROW MARKER

Lays off straight, evenly spaced rows automatically! Free-swinging boom and coil spring direct marker into proper position. Driver never leaves seat. No ropes or chains to pull. Makes sharp turns. Easy to attach. Fits most model tractors. For 2-, 3-, or 4-row operation.

Servis EQUIPMENT COMPANY

1000 Singleton Boulevard · Dallas, Texas · Box 1590

I would be interested in receiving descriptive literature and prices on:

- ☐ WHIRLWIND TERRACER
- ☐ SERVIS ANGLEDOZER
- ☐ DISC HARROWS AND PLOWS
- ☐ AUTOMATIC ROW MARKER
- ☐ SERVIS STALK SHREDDER
- ☐ DITCHER — TERRACER BLADES

NAME.....

ADDRESS.....

CITY.....STATE.....

Laugh It Off

Miss: So your husband objects to cats?
Mrs.: Yes, indeed. He says I feed all the cats in the neighborhood. Won't you stay and have tea?

• • •

Overheard at the basketball game:
Joe: Look at that guy dribbling.
Fanny Bell: It's a wonder he wouldn't blow his nose.

• • •

"You remind me of the ocean."
"Wild, romantic, restless?"
"No. You make me sick."

• • •

He—You're thinner.
She—Yes, I've lost so much weight you can count my ribs.
He—Gee, thanks!

• • •

"I really liked him a lot until he started to get fresh last night."
"Isn't it terrible the way a man can undo everything?"
"Oh, don't worry, he didn't get that far."

• • •

"Where d'ja get the black eye?"
"In the war."
"What war?"
"The boudoir."

• • •

"Let's get married or something."
"We'll get married or nothing."

• • •

Dot—Do they serve women at this bar we're going to?
Dash—No, you have to bring your own.

• • •

Ag Student (on farming field trip): Do insects ever get in your corn out here?
Farmer: Yeah, but we just fish 'em out and drink it anyway.

• • •

Hireling—I want more money. My wife's to have a baby.
Boss—Well, don't you carry accident insurance?

• • •

"Are you troubled with improper thoughts?"
"Why, no, I rather enjoy them."

• • •

Student: "I'll stand on my head or bust."
Gym instructor: "Never mind, Miss Senter, just stand on your head."

• • •

I took my girl to a horror movie and she screamed 10 times—once at the picture.

• • •

"What do you think would go well with my new purple and green golf sox?"
"Hip boots."

• • •

"Joe, you make love like a veteran."
"Why not? I've been through a dozen engagements."

• • •

A note to Johnny's teacher:
"Please excuse Johnny's absence yesterday. He fell in the ditch and got his pants muddy. By doing the same you will greatly oblige his mother."

• • •

"What would your husband say if he knew you were necking me like this?"
"I really don't know. He doesn't know that I can neck like this."

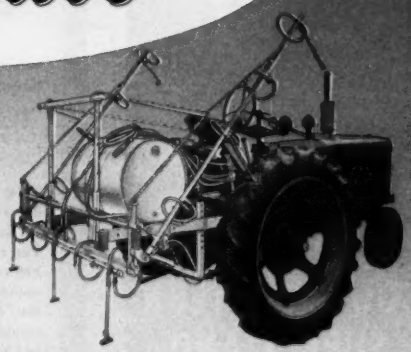
here's what YOU want in...

MODERN SPRAYING EQUIPMENT by Broyhill

New Agricultural Chemicals Require SPRAYERS of Special Design

You wouldn't hitch a big tractor to a walking plow. Nor should you waste time and money with a sprayer not designed for the job. Only Broyhill offers such a wide selection of LOW COST, FARM PROVEN MODELS for spraying cotton, corn and many other crops. Low cost, high pressure livestock sprayers available too.

Front or rear tractor sprayer models. Low cost trailer sprayers available. Guaranteed highest quality parts throughout. Complete parts catalogue available. Write for nearest dealer or distributor. Dept. CG.



Model 4ARC Deluxe Cotton Sprayer

A cultivator sprayer and many other low cost models to choose from. Adjustable row spacing, drop extensions, 8-way boom selector valves and many other high quality features available. Thirteen nozzle non-corrosive booms give full 6 row coverage Two row extensions optional.

DAKOTA CITY, NEBR. **THE BROYHILL COMPANY** SIOUX CITY, IOWA

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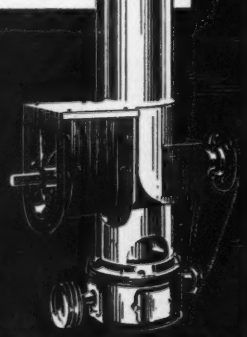
SINCE 1925

Rotor Lift

To industrial processors the world over, the name ROTOR LIFT gives assurance of complete satisfaction in mechanical elevating. There are nine distinct types of ROTOR LIFTS . . . standard or close fitting clearances . . . four diameter sizes. In world-wide applications, each has proved best for its particular job.

Investigate the field thoroughly. Learn for yourself why ROTOR LIFT is the accepted leader by a wide margin. Then when you buy, you'll *specify* genuine SOUTHWESTERN ROTOR LIFTS.



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MACHINE WORKS

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PRESS

52nd YEAR

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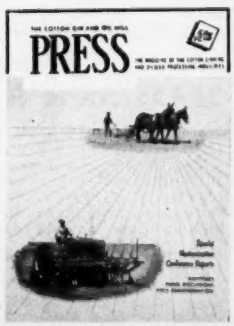
The Cover

THE MULE IS a noble animal and deserves a lasting monument for faithful service to Cotton Belt agriculture. The advent of mechanization, however, has cut deeply into our horse and mule population and in many sections of the Belt these animals have faded completely out of the picture. In other sections they are still the major power factor, but their days are numbered as more and more tractors find their way to Cotton Belt farms.



READ BY COTTON GINNERS, COTTONSEED CRUSHERS AND OTHER OILSEED PROCESSORS FROM CALIFORNIA TO THE CAROLINAS

The LARGEST and FINEST INSTALLATIONS

made on this continent in the last ten years,

using SCREW PRESSES FOR PRE-PRESSING

FOLLOWED BY SOLVENT EXTRACTION

. . . **have specified** FRENCH SCREW PRESSES because of their simplicity, large capacity, and ruggedness.

and,

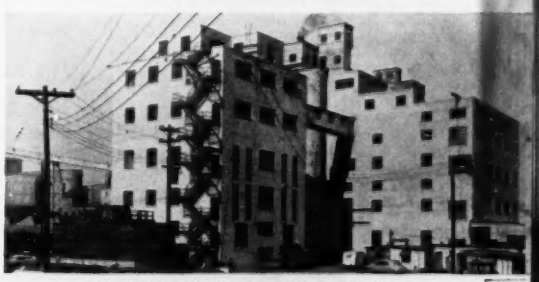
FRENCH BASKET EXTRACTORS because of their ability to handle all types of materials, pre-pressed or direct extracted, without excessive fines common to other systems and because of their enviable record for reliability and excellence of engineering workmanship, leading to uninterrupted and extremely safe operation.

The French Basket Extractor will perform efficiently when the going gets tough and others fail.

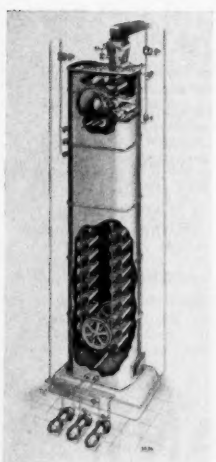
WRITE FOR FREE CATALOG ON FRENCH SOLVENT EXTRACTION SYSTEMS AND EQUIPMENT.

Other installations of French screw presses and extractors are currently handling peanuts, corn germ, copra, and many other oil seeds.

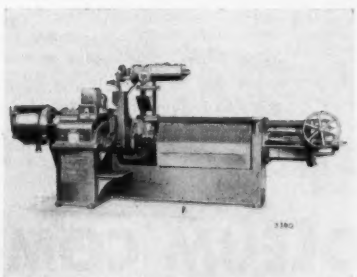
Minnesota Linseed Company, Minneapolis, Minnesota
Sold in 1947—18 French Screw Presses ahead of French Basket Extractor, on Flaxseed.



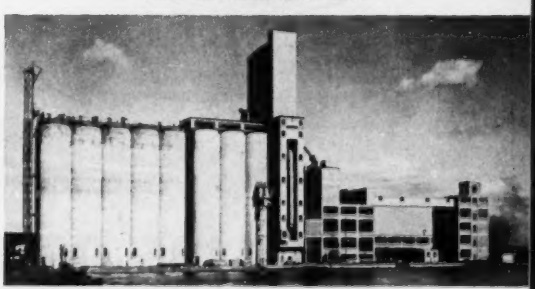
Archer-Daniels-Midland Company, Minneapolis, Minnesota
Sold in 1946—20 French Screw Presses ahead of French Basket Extractor, on Flaxseed.



Vertical type Basket Extractor. Made also in Rectangular and Horizontal types.



High capacity 4 section French Mechanical Screw Press shown with feeder.



Victory Mills, Limited, Toronto, Canada
Sold in 1944—6 French Screw Presses with French Basket Extractor on Soybeans, Peanuts, and all types of oil seeds.

THE FRENCH OIL MILL MACHINERY COMPANY

PIQUA, OHIO

Quality control specialists scrutinize practically every drop! They test Phillips *66* Normal Hexane for purity and good behavior every step of the way. And then Phillips delivers this high-grade solvent to you in special tank cars to insure against contamination.

When you use Phillips *66* Hexane to get the available oils from your beans, seeds, nuts, animal fat or what-have-you, *your product comes clean!* Pure, colorless Phillips *66* Hexane leaves no taint of taste or odor in oil or meal.

Extremely narrow boiling range . . . typical spread only 5° . . . prevents loss of light ends. No heavy residue, either. And because of Phillips dependable uniformity you will have less worries about adjustments in your system.

For full information and advice on solvents, write to Phillips, the world's largest producer of hexane.

PHILLIPS PETROLEUM COMPANY

BARTLESVILLE, OKLAHOMA

CG&OMPress Photo.

More than 3,000 farmers attended the cotton mechanization field demonstration at Chickasha.

Mechanization Conference Report

An Appraisal of Our PROGRESS IN MECHANIZATION

■ LONG-RANGE PROSPECTS for complete mechanization look good—but 16 million bales in '52 may be just a dream if Government refuses big enough steel allocation to make the machines needed to produce a crop of that size.

By IVAN J. CAMPBELL
Editor, The Cotton Gin and Oil Mill Press

THE FIFTH ANNUAL Beltwide Cotton Mechanization Conference at Chickasha, Okla., Nov. 8-9 provided the cotton industry with a detailed accounting of how far we have come, where we are now, and where we are likely to go in the steady march toward complete mechanization of the crop.

In making an analysis of the mechanization balance sheet a number of points stand out clearly. There are others, but the main ones seem to be:

■ **1—The farm labor situation, which** has grown progressively more serious during the past few years, became a very acute problem of major importance in the 1951 crop year.

■ **2—The unavailability of sufficient** labor this year and the increased cost of that which was available have given new impetus to the move toward complete mechanization.

■ **3—Farmers throughout the Belt** have come to the realization that they must completely mechanize—and as rapidly as possible—or get out of the business of growing cotton.

■ **4—Intensive research and on-the-farm experience** have given us greatly improved methods and machines for getting a cotton crop planted, cultivated, protected from insects and weeds, and harvested—but, as the Chickasha conference revealed, there is still a long way to go before complete and fully effective mechanization can be claimed.

We need to develop production and harvesting equipment within the financial reach of the average small-acreage cotton farmer. The larger operators, because of the advantage which is theirs through volume production, have been able to invest in the best production and harvesting equipment within the limits of its availability.

■ **5—The bottleneck in obtaining additional** equipment needed to meet another 16-million-bale goal in 1952 is steel and other metals.

■ **6—The two biggest remaining barriers** to complete mechanization are defoliation and weed control.

■ **7—The cotton breeder occupies a** key position in the harvesting phase of the mechanization program and it is his responsibility to give the grower high-yielding types of cotton that can be efficiently machine picked and machine stripped.

■ **8—Cotton diseases, with particular** emphasis on bacterial blight, which is responsible for greater losses than is generally recognized, need more attention from USDA, the state experiment stations, and cotton breeders. Bolls damaged by bacterial blight and insects lower lint grade and increase production costs. This damage must be reduced materially if mechanical harvesting is to take its rightful place in the mechanization effort.

■ **9—Emphasis must be given by Extension** and other educational agencies to the pressing matter of helping growers to prepare for mechanization. This

phase might be fitted into the 7-Step Cotton program and should be projected on state, county and community levels.

Most of these points and others are covered rather fully in the Chickasha conference addresses, panel discussions and other material on the following pages.

Long-Range Prospects Good

Long-range prospects in the field of mechanization are good, if not actually bright. Agricultural engineers, the implement manufacturers and others who are responsible for the machinery phase of the program have their work cut out for them and are fully aware of what the needs are for complete mechanization. The cotton breeder has a well-defined concept of what plant types are needed to round out the harvesting phases. It is recognized, of course, that other problems loom in the long-range prospects; but overall, we seem to be traveling a well-defined road.

• **But Here Is a Big Weakness**—One of the most glaring weaknesses in our research program has been the lack of concern, both by farmers and many research people, over the very serious losses caused by bacterial blight (also known as angular lead spot, black arm, bacterial spot). This disease, which ranks with seedling disease and boll rot complex as a major pathologic problem in cotton, occurs wherever the crop is grown and in some years is a major factor in reducing yields. If for no other reason, the economics of cotton production demand that we overcome this problem. It is doubly serious, however, in those areas of the Belt where strippers are used to harvest the crop. Stunted bolls of discolored cotton are left by mechanical pickers, but the stripper takes them to the gin.

Short Range Prospects: Not Good

Short-range prospects, especially for next year when it is expected the growers will be asked for another big crop, are not bright. Hand labor has become so scarce and so expensive that many growers will be forced to further mechanize if they expect to stay in cotton production. Unless more steel is allocated for the manufacture of farm equipment and processing machinery than is now in prospect, it seems safe to predict that thousands of farmers will be unable to meet their individual quotas.

• **Cotton: Second to Steel**—The quartermaster Corps has designated cotton second only to steel in importance as a war-and-defense commodity. This year the government, recognizing that fact, called on the cotton farmer to produce 16 million bales of cotton. Not only did he plant sufficient acreage to meet that goal, but he would have exceeded it had it not been for the weather factor over which he had no control.

When the government places an order for guns or tanks it sees that the manufacturer gets enough steel to fill the order. It would seem no less important, then, to see that the cotton farmer is provided with enough equipment to fill an order for our second most important commodity—cotton. If the government wants a 16-million-bale crop in 1952, then it ought to see that we get adequate quantities of steel and other metals for farm equipment, cotton and cottonseed processing equipment and containers for packaging insecticides to protect the crop. Cotton asks no special favors; it wants only what is needed to carry out its responsibility in meeting a production goal next year which government itself indicates will be around 16 million bales.

We're Come a Long Way, But—

Summing up, we have come a long way in meeting the stern challenge of synthetics and cheaply produced foreign cotton. The migration of workers from the farms and the greatly increased cost of using the farm labor left to produce a cotton crop have at last forced the issue of mechanization. Even if unlimited quantities of production and harvesting equipment were available, many farmers in low-yield areas would find it difficult to invest in needed equipment. Thus the small cotton farmer, and he is in the majority, presents to the manufacturer of equipment a very special kind of problem which can be solved only through the development of machines within his reach.

• **The Farmer Will Do His Part**—Our most immediate concern is 1952. If the farmer can get the equipment, he will likely produce as many bales of cotton as the government may request. If he can't get the equipment, he cannot be blamed if he reduces his acreage to a point which in his opinion available labor and equipment will properly handle.

The Oliver Cotton Harvester delivers a product that's in far better condition than one pulled by hand. Thus, ginners as well as farmers benefit, for both realize a greater profit from the high grade product gathered by the high speed Oliver, a 2-row, power driven, power lift machine ideal for harvesting stormproof varieties.

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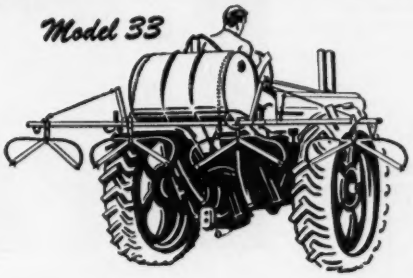

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Mechanization Conference Report

Welcome to Oklahoma

By Dr. LOUIS E. HAWKINS

■ **Address of welcome to the delegates in attendance at the Fifth Annual Cotton Mechanization Conference at Chickasha, Okla., Nov. 8-9, 1951.**

WE OKLAHOMANS welcome this Fifth Annual Belt-Wide Mechanization Conference to the Sooner State in full recognition that the crop around which the Conference has been built represents a very vital fraction of the State's agriculture. Agriculture, in turn, is by far the largest industry of the State and influences the lives and welfare of more of the State's population than does any other commercial activity.

Oklahoma has seen the annual production of cotton reach from more than one million bales twenty-five years ago to the all time low of a quarter million bales last year. I say the all time low was reached last year because never again will cotton production in this State fall to that low figure unless circumstances make other crops more profitable to produce. Last year's low figure was largely the result of unfavorable weather conditions combined with excessive insect infestation. Oklahoma cotton growers will never again allow themselves to suffer the insect losses which occurred last year. These losses definitely can, and will be, reduced by proper control measures.

Much of the severe soil erosion which has occurred in Oklahoma and the hill country of the South over the past fifty years has been charged against cotton. There is no denying that the system of clean cultivation under which cotton is grown is largely responsible for that excessive erosion; but farmers have learned the hard lesson that this system of farming cannot be practiced successfully on the rolling, erodible soils. Cotton production as a profitable enterprise must be restricted to the less rolling fields and careful soil-saving cropping practices must be observed on any fields that are subject to any degree of erosion. Oklahoma farmers have learned these things the hard way and will not forget them.

We welcome out-of-state visitors to Oklahoma on this occasion. We trust that you will recognize the contribution which this State is making to the food and fiber supply of the Nation and the World; also that you will see some of the great opportunities for future development of agricultural production and related industry in the State and this region of the Nation.

The theme of this Conference is vitally important to Oklahoma and the South. Cotton probably is the most versatile crop which we grow. It provides a wider assortment of kinds of employment, a greater variety of end products, and affects the lives of more farmers and their town neighbors who serve those farm families than any other crop that is grown in this State.

We often hear expressions of wishfulness for a new crop to be introduced into Oklahoma agriculture that would add materially to the farm production of the State. I go about the cotton growing areas trying to remind growers and townspeople of the great opportunities to increase the profitable production of cotton through the use of higher yielding varieties, insect control, fertilizer application, sound land management, and labor saving devices, and liken this increase to the discovery of a brand new crop.

Dr. LOUIS E. HAWKINS is Vice-Director of the Oklahoma Agricultural Experiment Station, Stillwater.

If we were to find a new crop which, in total production, offered an opportunity equal to this readily attainable increase in cotton production Oklahomans would immediately want to invest whatever cost was necessary to introduce such a new crop into the agriculture of the State.

I have no intention here of trying to sound the keynote for this Conference. A very fine gentleman, Dr. Sayre, who is one of the best versed men in America and the world on all aspects of cotton production and the cotton trade, will do that in a most effective manner. My purpose is to recognize the vital importance of this Conference to the agriculture of Oklahoma and the Cotton Belt, and to assist in extending to the out-of-state visitors the warmest welcome we can. Also, I want to express to each of you our deep appreciation for your part in the improvement of agriculture in your respective fields of activity.

I speak for all of the sponsors of the Conference—The National Cotton Council of America, the Farm Equipment Institute, Oklahoma A. and M. College, the Oklahoma Cotton Research Foundation, and U. S. Department of Agriculture—and express to those of you who are farmers, implement distributors, cotton ginners, educators, and others who work for the advancement of agriculture, the appreciation of the sponsors for your attendance here. Your presence is evidence of your desire to accept and apply the useful suggestions that will come out of this Conference, and to pass them along to your neighbors.

The program throughout today and this evening will be one of addresses by outstanding national figures in agriculture and related industry. Tomorrow's program will consist of a field day at the Oklahoma Cotton Research Station located one mile east of Chickasha. The forenoon program tomorrow will feature field machinery; in the afternoon, there will be a demonstration of the ginning of rough harvested cotton, followed by a panel discussion of field machinery. This panel discussion will be of primary interest to the research and developmental engineers of the implement manufacturers, and to State and Federal research groups. The afternoon program for the large crowd of farmers and others who will be in attendance will include a guided tour of the Station farm to see the cotton breeding work, variety tests, results of insect control measures, and cotton disease research.

We are delighted to see this large attendance at the opening session of the Conference and extend to you the warmest possible welcome.

More Georgia 5-Acre Cotton Champions Are Announced

Northwest Georgia's champion cotton grower for 1951 is B. H. Hodges, Butts County. He receives a $250 award for growing 13,871 pounds of seed cotton on five acres.

Five other district cotton champions are to receive similar prizes, provided by the Georgia Cottonseed Crushers Association, sponsor of the Georgia Five-Acre Cotton Contest. W. H. Smith, Jr., Bulloch County, has been announced as southeast Georgia winner, and L. L. Phillips and E. H. Wemberly, Bleckley County farmers, took top honors in the south central district.

Other district winners are to be announced prior to a meeting of cotton growing champions in Atlanta, Dec. 13. State winner in the contest, to be announced in Atlanta, wins $500.

Second place and third place winners in each of the six districts win $150 and $100 respectively. Second place winner in the northwest district is L. H. Maddox. Henry County, and third prize goes to H. M. Shaw, Polk County.

For the past five years Mr. Hodges has averaged over a bale of cotton per acre on his farm. This year he grew 102 bales on 86 acres.

Mr. Maddox won the second prize by growing 12,897 pounds of seed cotton on five acres. The third prize winner, Mr. Shaw, grew 11,383 pounds of seed cotton on five acres.

Texas Coop. Ginners to Meet Feb. 11-12

The 1952 annual meeting of the Texas Cooperative Ginners' Association will be held in Houston, Texas, Feb. 11 and 12, E. M. Cooke, secretary-treasurer, has announced.

The Rice Hotel will be headquarters for the meeting, Mr. Cooke said.

Two BIG REASONS WHY

GROWING COTTON HAS A BRIGHT FUTURE

The cotton growers' future has never looked brighter. John Deere has made the dream of fast, low-cost cotton harvesting a reality. Two big-capacity machines—the John Deere No. 15 Cotton Harvester and the John Deere No. 8 Self-Propelled Cotton Picker—have made economical harvesting possible in all varieties of cotton. Both grower and ginner now hold a stronger position in today's highly-competitive market.

JOHN DEERE No. 15 TWO-ROW COTTON HARVESTER

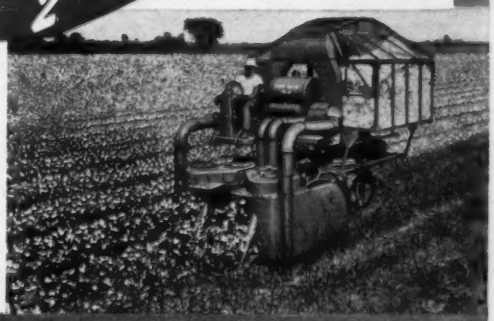
1

In the dryland cotton areas of Texas and Oklahoma the John Deere No. 15 Two-Row Cotton Harvester has cut harvest costs from $25 to $40 *per bale* over hand-pulling costs.

The No. 15 strips two 40-inch rows of storm-proof cotton at a time after leaves have been removed by frost or defoliant. It does a once-over job saving more bolls than the average hand picker. Much of the dirt and trash is separated from the bolls. Ginners report that cotton harvested by the John Deere grades as high as cotton hand-pulled at the same time.

JOHN DEERE No. 8 TWO-ROW COTTON PICKER

2



In the deep South, in Arizona, and in California the John Deere No. 8 Two-Row Self-Propelled Cotton Picker does an excellent job of picking tall, open-type cotton. One man and the No. 8 can do the job of 70 or 80 hand pickers. The No. 8 is a spindle-type picker that picks two rows at a time from both sides of each row. Partly open or rotten bolls are left on the plants. Green bolls remain undamaged.

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Feeding Tests Prove

Processing Affects Nutritive Value of Cottonseed Meal

FEEDING TESTS in which cottonseed meals produced experimentally during the past year by a modified screw-pressing technique developed in cooperative research by the Southern Regional Research Laboratory and the cottonseed crushing industry have borne out earlier indications that processing conditions greatly affect the nutritive value of the meal and can be adjusted to produce meals of superior quality.

Reports of tests in which large quantities of improved cottonseed meals were fed with excellent results to hogs and growing chicks, as well as to other experimental animals, were presented by state feeding specialists from Texas, Arkansas, North and South Carolina, Florida, and Mississippi, and also by members of USDA, at the second annual conference on cottonseed processing as related to the nutritive value of cottonseed meal, held in the auditorium of the Southern Laboratory in New Orleans Nov. 5-7. In addition, Kenneth Kuiken of Buckeye Cotton Oil Company, Cincinnati, Ohio, described experiments with "degossypolized" cottonseed meal produced by his company.

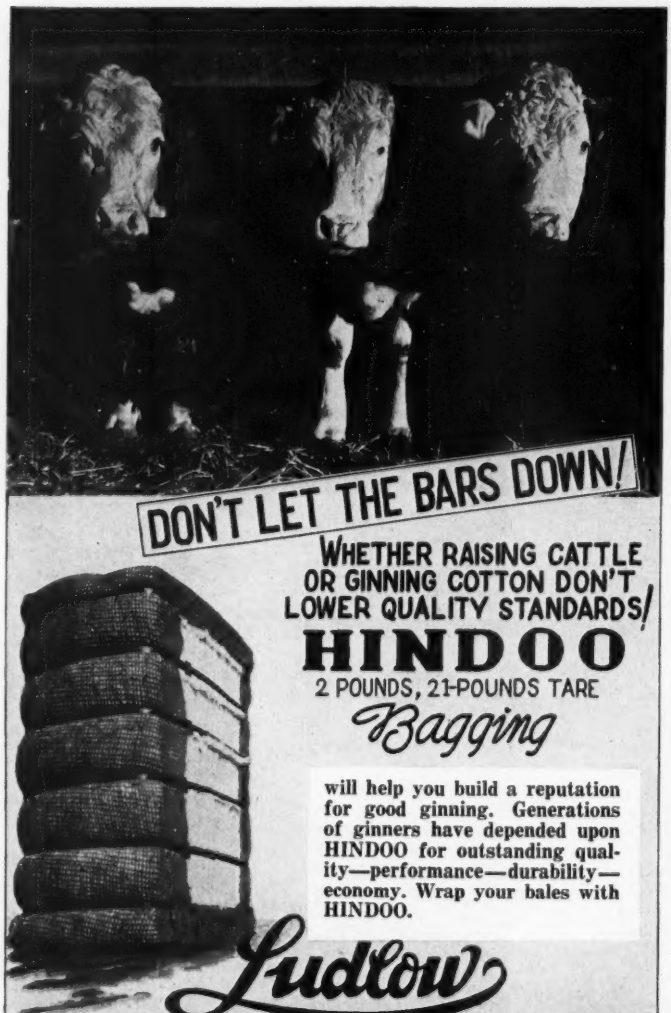
Attendance at the conference totaled 75 persons from 22 states and Washington, D. C., including, in addition to representatives of the oilseed crushing industry, a number of mixed feed manufacturers, equipment manufacturers and others from related industries. One company in Denmark was represented. The conference was sponsored jointly by USDA and the Educational Service of the National Cottonseed Products Association.

Following the reports on feeding, which consumed all of Nov. 5, an entire day was devoted to round-table discussions in which the results were analyzed and significant questions reviewed in order to pin-point problems requiring further study. This discussion brought out the need for a standard, uniform ration to be used as a means of minimizing the variables so that more comparable results might be obtained in feeding tests conducted by different research workers. A committee headed by Dr. J. R. Couch, Department of Biochemistry and Nutrition, Texas Agricultural Experiment Station, College Station, was apointed to agree upon such a ration in future nutritional studies with cottonseed meal.

Reports by members of the Southern Regional Research Laboratory and by A. C. Wamble of the Texas Engineering Experiment Station, College Station, on Wednesday brought the group up-to-date on the progress already made in understanding the fundamentals of cottonseed processing and emphasized the type of additional research needed to develop practical methods of producing the meals of superior nutritive value.

The entire conference pointed up greatly enlarged opportunities for constructive research on cottonseed meal, A. L. Ward, director of the Educational Service, National Cottonseed Products Association, said in closing the three-day meeting.

"The results of joint efforts of the Southern Regional Research Laboratory, cottonseed crushers and state and federal experiment stations reported at this conference are most encouraging and should serve to stimulate continued and enlarged processing and nuritional research with the cottonseed products that are one of the South's most important feeds," he stated. "The large attendance of key representatives from both research organizations and commercial firms is evidence of a growing recognition of the need for, and value of, this research program."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Corn Products Elects

James A. Moffett and Robert W. White have been elected to the board of directors of Corn Products Refining Co., New York, N. Y., oil mill operator with mills at Argo, Ill., and Corpus Christi, Texas.

Mr. Moffett has been with the company since 1935. He was elected a vice-president in 1949. Mr. White is a member of Robert White Associates.

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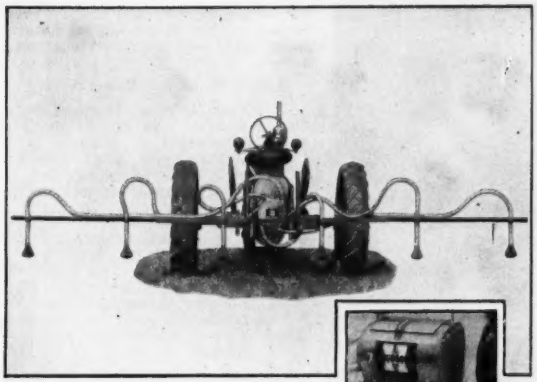

Inset shows simple mounting assembly, practical hopper design with tight-fitting, hinged cover, convenient feed lever control.

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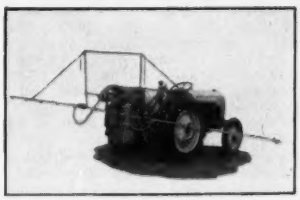

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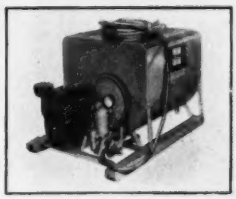

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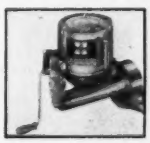

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Disc tiller preparing land which later will be planted to cotton.

Mechanization Conference Report

Cotton Looks Ahead

By Dr. C. R. SAYRE

■ **Address before the Fifth Annual Cotton Mechanization Conference at Chickasha, Okla., Nov. 8-9, 1951.**

THE BELTWIDE Cotton Mechanization Conferences at Stoneville, Miss.; Lubbock, Texas, and Bennettsville, S. C., did much to catalogue the exact nature of cotton mechanization problems in different parts of the South and West. At this, the fifth annual Beltwide Cotton Mechanization Conference, we must deal with those problems, in an action sense, in the framework of two specific time periods. Part I will be for next year—1952. Part II is the long pull, let's say between now and 1975. Part I, or 1952, is of such critical importance that much of this discussion will be centered upon next year.

Part I—1952

There are several outstandingly significant circumstances which directly affect the rate at which cotton mechanization should and can go forward in 1952. The following listing includes most of those conditions on cotton farms.

1. Cotton farms were underpowered in 1951 and more than normal replacement of power and equipment is needed.
2. Cotton labor force is vanishing at a faster and faster pace.
3. Productivity per worker must be increased upon both mechanized and partially mechanized cotton farms.
4. The absence of training programs for machine operators is seriously hampering efficient utilization of power and equipment on cotton farms and keeping the productivity per worker on much too low a plane.
5. Lack of attention to health of workers is adding to production costs with mechanized methods on many cotton farms.
6. There is an extra large weed seed population in cotton fields for 1952.
7. A current appraisal of chemical weed controls is needed for each part of the Cotton Belt almost immediately.
8. Financial risks must be reduced, compared with 1951, if farmers and those who finance cotton production are going to mechanize enough to make a big cotton crop a feasible expectation in 1952.

Dr. C. R. SAYRE, who was General Chairman of the Conference, is President of the Delta & Pine Land Company, Scott, Miss.

There are two other extremely important considerations affecting mechanization in cotton areas in 1952. One is the availability of materials for mechanization. This topic will be reviewed later today by our good friend, Mr. Ralph S. Trigg, deputy administrator, Defense Production Administration. (Although Mr. Trigg was unable to attend the Conference, extracts from his address will be found elsewhere in this issue.—ED.) The second is the kinds and amounts of cotton for which there will be an effective demand in 1952. Mr. E. D. White, deputy director, Food and Agriculture, ECA, will provide much of the perspective for that problem in his review of the world cotton situation, which is the next topic on this morning's agenda.

More Mechanical Power Needed

Tough conditions at planting time last Spring demonstrated that cotton farms are underpowered in terms of timely field operation even when seven-day, extra-hour schedules were followed. Weeds and grasses almost took the crop in many non-irrigated territories in 1951. Abandonment was at record heights in many communities, particularly in the Mid-South.

Tractors, the power unit itself, must be available in a substantially higher ratio to cotton acreages, if high level cotton production is to be maintained. There were 4 tractors for each 1,000 farm workers in the South in 1920. There were 61 in 1945. Today the ratio in cotton growing areas is about 85 tractors for each 1,000 farm workers.

In Corn Belt communities, with almost complete mechanization of intensive types of farming, there are more than three times as many tractors in relation to the labor force when compared with the Cotton Belt.

There is no adequate basis for the selection of historical ratios or for making "question and answer surveys" to determine farm machinery requirements for high-level cotton production as a part of the preparedness program.

The best obtainable guides for the determinations as to numbers of tractors needed in cotton growing areas and the desirable distribution next year can be derived from the studies made of agriculture's production capacity in 1952, now being completed by the Bureau of Agricultural Economics, USDA, and cooperating State Agricultural Experiment Stations. These studies were designed to outline ways in which high level cotton production can be fitted into farming systems with the least disruption of long-run desirable trends and the best use of available resources. A group of competent technicians could take these studies and outline fairly satisfactorily the tractor power and equipment needs for high-level cotton production in 1952. It is of major consequence to the preparedness program and to the cotton industry that such studies be made immediately with technicians from research and government-control agencies working together.

A Vanishing Labor Supply

The cotton labor supply—near the bottom of the manpower barrel in this country—is being drained off at a faster and faster pace. At least nine different influences are causing serious strains upon available labor supply, relatively, for cotton production, ginning and warehousing. These are:

1. The governmental "dry-up" of wetback labor from Mexico.

(Continued on Page 23)

Mechanization Conference Report

The Cotton Situation

By E. D. WHITE

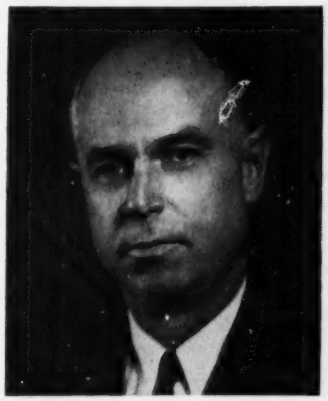
■ **Extracts from address before the Fifth Annual Cotton Mechanization Conference at Chickasha, Okla., Nov. 8-9, 1951.**

DURING THE COTTON SEASON just ended the world witnessed the most chaotic market situation in the memory of living men. It was basically due to the demand and supply for cotton being tightly in balance—enough to meet all increased needs but none to spare. It was the kind of situation that required a careful analysis of the facts, sound planning for procurement and moderated actions by governments. Just the opposite occurred. The season began with an urge to buy and a tendency to add to stocks based upon fears growing out of the new conflict in Korea. Before the first quarter of the season had ended many important producing countries including the United States had taken steps to restrict the flow of cotton to consuming nations. These restrictive actions on exports were interpreted by buyers as good grounds for earlier fears of scarcity. This new fear resulted in a genuine fright that expressed itself in a rush to buy and to ship. All of this created so much turmoil in the cotton markets of the world that a number of countries decided to establish price ceilings on cotton and in some countries where ceilings were not established the price of cotton rose to as high as a dollar a pound. The experience will long be remembered because it was costly but it may serve to stimulate governments into developing more effective plans for facilitating future international trade in cotton.

• **Disappearances of the Surplus** — By 1945 the world cotton crop had dropped to 21 million bales—far below the 30-million-bale crop of the pre-war period. Thus, in the early post-war period world cotton production was at the lowest level since the First World War.

Although the crop was small in 1945, there was a tremendous world carryover of cotton. It amounted to over 29 million bales—double that of pre-war, and the biggest world carryover of cotton in history.

But, during the next 3 or 4 years, the situation changed greatly. It was easier for the textile mills in all parts of the world to increase the production of textiles than it was for farmers around the world to convert from food crops to cotton. Moreover, as a result of the Marshall Plan and the general world recovery that followed, foreign mills increased textile production rapidly. As a result, the world used up cotton far faster than it was produced. For example, during the first year after the war, the world used 3½ million bales more cotton than were produced . . . . . during the second year 6½ million bales more cotton were consumed than produced . . . . . and during the third year again 3½ million more. In other words,



E. D. WHITE is Deputy Director of the Food and Agriculture Division, Economic Cooperation Administration, Washington, D. C.

in those three years, the world dipped into its reserve supply of cotton to the extent of 13 or 14 million bales. As a result, the big post-war surplus was whittled down to 15 million bales—down to manageable proportions.

• **Cotton Production Up**—With the 7-million bale increase in the United States this year, world production is forecast at about 35 million bales against an estimated world consumption of 32 to 33 million bales. But the situation has not been uniform over the world.

Three of the eight major cotton growing nations—Brazil, Egypt, and China—appear to have stabilized cotton production for the time being at around 2 million bales a year or less. This is somewhat below pre-war. A fourth nation, Russia, is producing around 3.3 million bales of cotton a year, which is also slightly less than pre-war. Yet, there are signs of expansion. India and Pakistan, for example, have plans to get back to pre-war levels. Mexico, which used to be a minor cotton producing country, is now producing a million bales of cotton a year for export. Furthermore, cotton production has been expanded in the Middle East, notably in Syria and Turkey. Turkey may have nearly a half million bales of cotton for export this year.

• **Is a 17-Million-Bale Crop Too Large?** Here in the midst of the greatest cotton producing nation in the world, we are more impressed by the size of the domestic crop than we are by the cotton supply situation in the rest of the world. Whenever the American crop is large, it is easy to visualize a surplus. Whenever the American crop is short, it is just as easy to visualize a scarcity. But this can be misleading. To understand the situation, we must also consider the size of the foreign crop as well as the amount of cotton carried over in foreign countries into the new season. If the world produces 2 or 3 million more bales of cotton this year than it consumes, what will happen with this excess production; is it needed; will it serve any beneficial use; or will it just hang over the market and depress prices; and if so, how much?

The consuming textile mills in the world need and require at least 4-months' reserve stock to fulfill manufacturing requirements for cotton cloth. In event of ocean shipping difficulties, or railroad transportation difficulties, or strikes at ports or elsewhere in the transportation system, even though small, the supply situation at the mills would be serious with stocks of this size. So, to allow for such temporary interruptions, and to provide for so-called "misfits" in qualities, as well as to meet other unforeseen contingencies, world stocks equal to 6-months' mill requirements should be regarded as moderate and considered as desirable in order to assure continuity in textile mill operations.

At the beginning of the current season, August 1, 1951, the world had only 10.9 million bales of cotton. Should this stock be increased by as much as 3 million bales during the current year, the carryover at the end of this season would approximate 14 million bales. This would be equal to only about 5-months' stock for consuming mills, well below the amount regarded as needed for maintaining normal operations at current consumption levels.

• **The Production Drive** — In order to meet consumption requirements last season world stocks of cotton were drawn down to the barest minimum levels. This, coupled with a continuing strong demand for cotton, made necessary a drive to increase substantially cotton production. Generally speaking, all cotton producing countries of the world needed to increase production substantially. But with cotton production in most countries already at near maximum levels, the only opportunity for a quick, big increase in production was here in the United States. American farmers responded admirably to the call for increased production. The cooperation of all agencies—public and private—interested in cotton was excellent. The result was a 7-million-bale increase in the American crop.

For next year—1952—the world should continue high level cotton production. While the urgent need for more cotton has been met satisfactorily, world consumption of cotton is continuing at record high levels. However, with the need for cotton somewhat less urgent, farmers in some parts of the world can turn greater attention to the increased production of food crops. In other parts of the world—including here at home—farmers can give more attention to carrying out a balanced farm program and to meeting the conservation requirements of their soils.

• **Seasonal Price Changes**—During periods when consumption requirements are being met and stocks are being moderately rebuilt, prices often tend to exhibit wide seasonal variations. This may happen this year. The weight of a large crop at the beginning of the season—during the harvesting period—generally tends to depress prices at that time; whereas, later in the same season a continuing strong consumptive de-

mand tends to lift prices to higher levels. It is in seasons like this that such a situation is likely to occur. What is needed is an orderly flow of cotton into consumptive channels at stable price levels. This is beneficial to both producing and consuming nations. During periods of stringent currency controls, such as have existed since the end of the war, wide price fluctuations create as much difficulty in consuming countries as they do in producing nations. It is upsetting to all concerned. Here again, sound planning and moderated actions in marketing are needed.

• **The Problem of Finance**—One of the most serious problems in international trade in cotton since the end of the war has been finance. This has been especially true in buying cotton with dollars. Immediately upon the end of the war, exports of American cotton increased rapidly due to special financial arrangements either through lend-lease, long-term loans, special short-term loans for cotton, or exchanging raw cotton textiles. But as soon as these programs ended, exports of American cotton dropped and dropped rapidly. It was at this time that the Marshall Plan was put into operation. At that time, exports of cotton from the United States had declined to 2 million bales. Most foreign consuming nations had plenty of *their* kind of money—marks, francs, gilders, lira, yent, etc., but they could not exchange their money for dollars. Neither were cotton merchants in position to accept that kind of foreign money for cotton that had been bought with American dollars. So ECA moved in to bridge this dollar gap. During its first 3 years, ECA financed nearly a billion and a half dollars worth of cotton or three-fifths of all the cotton that was exported from the United States.

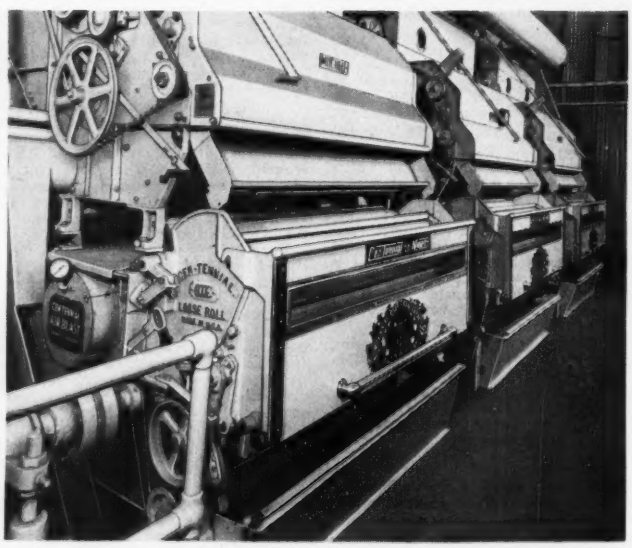
Europe will not need as much assistance in the period ahead as in recent years. In fact, some countries need but little if any economic aid and others need less economic aid than heretofore. With the foreign military assistance envisioned in recent legislation, coupled with the reduced economic assistance, most countries in Western Europe appear financially able to meet minimum requirements.

• **Prospective Exports**—The total cotton import program in Western Europe has been fitted into the ability of each country to pay according to its estimates of income. The Western European countries expect to buy more than 3½ million bales of U. S. cotton. Expected imports by certain South Asiatic countries, in which ECA has aid programs, bring the total up to more than 4 million bales. This anticipated import of cotton from the United States is not an estimate by ECA in Washington or by other Washington government agencies; but it is an estimate on the part of each government i'self, based upon anticipated spinning requirements and the expected ability to pay. When exports to other destinations such as Japan, Canada, Spain, etc., are considered, a total export of 6 million bales from the United States this season appears probable. If the United States *does* export 6 million bales, it will be the largest export from the United States during the past 12 years and it has been made possible by the production of a crop substantially larger than 16 million bales.

• **Per Capita Consumption Low** — To keep our long-range trends and problems in focus, let's review quickly what has happened to consumption. The figures on total consumption of cotton may be deceiving, for, although production has increased, the world population has increased even faster. The world has 200 million more people to clothe than before the war in 1939. In other words, there has been added to the world population the equivalent of a country much larger than the U. S. and Canada combined. Furthermore, the world population is increasing at the rate of about 20 million people a year. If world living standards are to be increased above pre-war—and the tendency is in that direction—more cotton per capita will be used. Also, as the nations of the world industrialize, more cotton will be needed to meet the industrial requirements. Such requirements for cotton are large in most countries.

In the United States, we are using a third more cotton per capita than before the war. On the other hand, Europe is consuming about 10 percent less cotton per capita; Asia, about 25 percent less; and Russia, 30 to 35 percent less cotton per person than before the war. Given an adequate and stable supply of raw cotton and a period relatively free from major conflicts, cotton consumption should continue to expand considerably. It is against this background of a large increase in the potential demand for cotton that we need to think and to plan. We need to encourage all measures that tend to stimulate international trade.

• **Situation in Pakistan**—Pakistan is an important cotton-producing nation today. It exports about a million bales of cotton a year. Ninety percent of this cot-



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ton is American type—grown from Acala seed originally imported from the United States.

Five important rivers make cotton growing possible in Pakistan. They furnish a dependable source of water for irrigation. The climate of Pakistan is much like that of Arizona, but the method of farming is entirely different. The typical farm averages only about 12 acres. Farm families are large and there are large reserves of unsued labor in every country. The cotton fields on these small farms are merely patches—an acre here—a half acre there. The draft power is oxen or buffalo and the wood plow is generally made on the farm. Farmers often sow cotton broadcast like we do turnips in our own gardens and truck patches. Sometimes they plow to a stand with a primitive type plow but often they make the crop entirely with a hoe. This year farm wages are about 30 cents per day—and it is a long day's work. Yields are about equal to the average yield in this country 15 years ago and about equal to the cotton yield in Oklahoma and Texas today. Little or no fertilizer is used. The same is true of insecticides. If farmers planted better seed, employed modern methods of irrigation and cultivation, and used as much fertilizers and insecticides as we do, the yield of cotton in Pakistan probably would be doubled.

If cotton farmers in Oklahoma and elsewhere in America are to compete effectively with Pakistan and other similar nations, they must use machinery. American farmers pay 16 to 20 times higher wages than farmers pay in Pakistan and other important cotton growing nations in the Middle East and the Orient. The efficient use of modern machinery and the application of scientific farming practices offer the only substantial hope this country has in continuing to supply large quantities of cotton to the consuming markets of the world.

• **Situation in Turkey**—Before the war Turkey produced about 250,000 bales a year. Last year, Turkey produced nearly a half million bales and this year expects to produce about two-thirds of a million bales. Syria produced only 35,000 bales of cotton before the war; last year, Syria produced 164,000 bales of cotton and this year expects to produce about 300,000 bales.

I visited the important export cotton market in Adana, Turkey. There I saw farmers offering samples of cotton to merchants. I talked with one farmer who told me he was still holding about half of his 1950 crop of about 300 bales. The buyer was offering him $1.04 a pound. He refused. This cotton was about equal to middling 1-1/32", rough preparation and fair character.

The high price being paid for cotton —caused largely by the short crop in the United States—was causing all farmers to make plans to plant the fullest acreage possible to cotton this year.

If Turkey produces two-thirds of a million bales of cotton this year, it will export nearly half a million bales. This cotton will go to the same mills in Germany, France, The Netherlands, and other European countries that use American cotton. Turkish cotton is American type cotton. It also was developed from our well known Acala variety.

• **Mechanization a Must**—The situations in foreign cotton-producing nations all add up to the same conclusion: An abundance of labor, very low farm wages, a desire to grow cotton, an urge to grow more as prices increase, and the ability to put on the market a product reasonably competitive with our own. That is why I say mechanization is important if this country is to continue to supply large quantities of cotton to foreign consuming mills. It is important for American farmers to maintain these market outlets, and, I believe, it is just as important for foreign consuming mills to have access to large and stable supplies of American cotton. This country has the greatest abundance of natural resources for cotton production of any nation on earth. Should we not keep these productive resources—good soil, adequate water supply, favorable climate—employed in the production of one of the most important raw materials in the world—cotton? Do we not need to meet our responsibility in world leadership by supplying this vital raw material to the free nations—who need it—and can't produce it?

• **What About the Future?**—No one appreciates more than the Cotton South the importance of restoring two-way trade between the United States and Europe and putting our long-time European customers in a position to buy. The Cotton South should lead the way in stimulating this nation to increase its efforts to revive and maintain trade. We must make up our minds to allow Europe to earn enough dollars to buy what she needs from us in order to keep foreign trade a two-way street.

In the long run, is it not to our own interest and to the best interest of the world to plan crops large enough to be on the safe side—large enough to meet all consumptive demands whenever they arise? When necessary, are we not better prepared to handle a manageable surplus during heavy crop years than we are to restrict sales and in that way ration cotton during years of scarcity? It's important that we keep abreast of demand—maintain our competitive price situation—and keep our cotton customers satisfied. If we are caught short, our customers will turn elsewhere. Furthermore, if we expect to meet our responsibilities in this changing world—if we expect to serve the needs of consumers and of workers in textile mills—we need to plan adequately to meet their requirements. We cannot always seek short-term gains and obtain long-time benefits.

Cotton Looks Ahead

(Continued from Page 20)

2. The pull of higher wages and modern conveniences attracting laborers to small towns.

3. The mobilizing of semi-skilled and skilled workers for expanded production in industrial centers. This provides favorable chances for unskilled workers to take up the service and drudgery jobs left vacant.

4. The manpower drain from Selective Service.

5. The revised child labor provisions in the Fair Labor Standards Act of 1950.

6. Higher earnings by heads of families with a reduction in numbers of other members in the family who need work.

7. Shorter working hours.

8. The out-migration from cotton areas is mainly the younger, more able workers with greater initiative. This is a particularly regressive influence upon the development of efficient mechanization.

9. The shift of an increased proportion of cotton production to sparser-settled areas as in the Southwest and California.

There are not many bright spots in the cloudy picture which has surrounded the importation of Mexican Nationals under the present agreement with the Reupblic of Mexico and with the existing attitude of the Immigration Service and others in a position to affect the policy and administration of labor importation laws. Experiences under present legislation have been very costly and unsatisfactory. There are no assurances now that a reasonable agreement will be worked out with Mexico and certainly there are no assurances that the Congress will pass suitable legislation for Mexican Nationals in the face of active, persistent, and forceful opposition from organized labor groups.

Time limitations do not permit a detailed review of the other factors which point towards less labor on cotton farms in 1952 than in 1951.

Perhaps the only basic solution to the labor situation in cotton is to increase the productivity per worker through fuller and more efficient use of a much greater number of machines, with broadened and directly applicable training programs for farm workers, and increased effectiveness of health improvement measures.

Inadequate Training of Machine Operators

There are few effective training activities for tractor drivers, cotton picker drivers, cotton stripper drivers, and for maintenance personnel. Without systematized training it will be impossible to get the most out of tractor-technology in 1952. Any farm with more than six tractors should have its own tractor operation and maintenance training program this winter. Every cotton farmer having from one to six tractors should join with his neighbors in a neighborhood program. Let me tell you how a colored boy, up to now, becomes a tractor driver on the Delta and Pine Land Company. We have 166 tractors, 28 cotton pickers and 7 self-propelled combines.

About the time the boy is eight or nine years old he begins to slip around at noon-time or in the evening to try to start the tractor when no one is around. Or, he may talk his brother into letting him drive over on the ridge where the woods shut off the view from headquarters. Literally he sneaks around to try to figure out how to start and operate a $2,600 tractor. Then one morning he is up around headquarters and the manager is mad because three drivers did not show up, so he growls at the kid, "Can you drive, boy?" It must take a lot of courage for the youngster to say "Yassah." He must live a thousand lives by the time he gets out of the road into the field and finally gets alone with the rig so that he can really "try 'er out." While he is learning in that fashion we are paying in terms of excessive waste of time, machinery performance, and in repair bills.

The Productivity Toll of Poor Health

The toll of poor health continues to

(Continued on Page 70)

The rapid trend toward complete mechanization of the crop will continue, unless materials shortages slow down the manufacture of equipment.

Mechanization Conference Report

Materials Available For Mechanization of The Cotton Industry

By RALPH S. TRIGG

■ **Extracts from address prepared for delivery before the Fifth Annual Cotton Mechanization Conference at Chickasha, Okla., Nov. 8-9, 1951.**

IN AN OFFICIAL capacity, I have been directly concerned with the problems and the opportunities of the cotton industry for a number of years. My present responsibilities are not immediately related to production or to price and marketing questions as such, but cotton looms just as large in the over-all considerations of the Defense Production Administration.

There is no question about the vital importance of cotton today. There is no question about the need to continue producing at levels which will meet expanded requirements for this vital commodity. There is no question about the need to do all we can to support increased efficiency of operations, all the way from the field to end-products, and including the important advances in mechanization. A short crop in 1950, coupled with greatly increased demand after the Korean aggression, resulted in a very tight cotton situation a year ago. Looking ahead, it seems pretty obvious that we will need to continue high level cotton production.

This brings us to the question of the tools which will be available to do the job. This conference is particularly concerned with the availability of equipment to continue the development of mechanization for the cotton industry.

RALPH S. TRIGG is Deputy Administrator for Program and Requirements, Defense Production Administration, Washington, D. C.

I have already indicated our understanding in the Defense Production Administration of the great importance of cotton. I can also assure you of our full and sympathetic consideration of the needs of the industry for strategic materials. At the same time, you will recognize the fact that we must balance *all* essential requirements against the available supplies. The needs of one industry, no matter how important, cannot be considered alone.

In checking requirements and trying to reach a balance, we are up against one inescapable fact. There simply are not enough supplies of some critical materials to go around, even for the more essential uses. This means that some areas of production, although recognized as of relatively great importance, cannot be given all the critical materials they ask for or need.

This situation will undoubtedly be reflected in the equipment needed to carry forward the increased mechanization trend in the cotton industry. I want to be quite frank about this. There is no escaping the fact that beginning in the first quarter of 1952 we are entering a very critical period in our defense program. Things look better on ahead, but for a few months there will have to be a slowing down in many lines of equipment production. It looks as though we will have to get along for a while with less new machinery, including some of the equipment which would be desirable for a more rapid expansion of mechanization for cotton.

Other speakers at this conference have been scheduled to go into details, but I will try to give you the broad outlines of the general situation as we see it now. A brief summary of the approach we take in reaching allocation decisions, and the steps to insure complete review, will help in an understanding of conclusions regarding the availability of mechanization equipment.

The office that I head—the Office of Program and Requirements in the Defense Production Administration—has the over-all responsibility to see that we achieve the soundest possible balance between limited supplies of critical materials and the needs for these materials in various phases of the defense effort. This means developing a balance sheet for the entire economy, and determining the relative essentiality of different programs. In simple terms, it means that we have the job of seeing that available materials go where they will contribute most to both immediate and long range needs.

In reaching final decisions on allocations which will bring requirements into balance with available supplies, we are guided by three basic policies: (1) the material needs of the approved military program should be satisfied in full, after careful screening to eliminate errors, duplications, waste and any improper scheduling; (2) the material needs of

(Continued on Page 75)

MR. TRIGG was to address the Conference on the first day, Nov. 8, but at the last minute was forced to remain in Washington. However, the materials supply situation and outlook is of such great importance that it was deemed advisable to publish Mr. Trigg's comments on that matter in this special issue. —EDITOR.

Mechanization Conference Report

The Farm Machinery Outlook for 1952

By A. KING McCORD

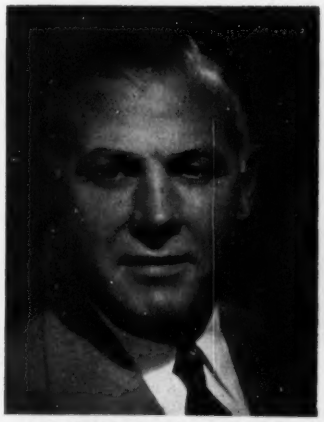
■ **Extracts from address before the Fifth Annual Cotton Mechanization Conference at Chickasha, Okla., Nov. 8-9, 1951.**

I AM PLEASED that my first opportunity to speak on the subject "The Impact of Mobilization on 1952 Farm Machinery Output," is before people interested in cotton, that wondrous fiber so basic to the economy of our country and to the world. And yet, when I hear the word "cotton," I cannot, for some reason or other, help but think of the good old cotton stocking. So I listened with interest to a humorist in Chicago last month who, after revelling in the wonders of modern chemistry, allowed that in his opinion the cotton stocking is being replaced with fabrics made from wood, coal, and rubber. He said that it was having an upsetting effect on American morale, because today, when a woman experiences a run in her stocking, she doesn't know whether she has suffered a splinter, a clinker, or a blow-out.

During 1950, the administration, through several agencies, had issued material priority ratings for direct military items, and to provide for increased production of certain products considered essential to the national defense such as steel and oil, and the construction of ore boats, freight cars and a limited number of other civilian products. The farm equipment industry did not press for a priority rating at that time. But in January, 1951, the procurement of steel had become so difficult that the Farm Equipment Institute was forced to request government to establish a priority in favor of farm equipment manufacturers for the procurement of critical materials. The importance of the industry had already been recognized in principle by government through the creation of a small farm equipment branch under the Machinery Division of NPA. It was staffed by two men, two stenographers and one clerk.

The request for assistance to this branch in Washington were overwhelming. The small staff was flooded with requests for help, and it soon became apparent that the vital farm equipment industry had to be protected by the organization of a full fledged division within NPA. The industry was asked to recommend a man to serve as director of that division. So it was that I became a bureaucrat—a director without a division—a man with a fairly hefty organizational job.

Within a few days I was in Washington, directing the organization of the Agricultural Machinery and Implements Division which, thus far, existed only



A. KING McCORD is President of the Oliver Corporation, Chicago, Ill.

as a good idea in the minds of a few men. Farmers, dealers, and manufacturers in the industry had been deluging Washington with appeals for assistance. Their letters were going to the President, to Congressmen, Senators, Cabinet Officers, the Department of Commerce, NPA and DPA and to the Department of Agriculture. All this correspondence was having a hard time finding a home. Two days after notice of my appointment, the mailman carried in great bundles of unanswered mail, forwarded to me from many, many desks in official Washington.

On March 31, 1951, before my arrival in Washington, the NPA issued order M-55 which provided a priority to the farm equipment industry for the procurement of metals for the month of June, 1951, in an amount equal to 1/6 of such metals received by manufacturers during the six-month period January 1, 1950 to June 30, 1950. We knew then —and the NPA knew—that its system of priorities was breaking down and becoming less and less effective. However, that order was a specific recognition on the part of government of the essentiality of farm machinery in the American economy and, although its effectiveness was not 100 per cent, the order did afford a measure of relief.

My real, long-term problem was to get relief extended to the industry for the succeeding three months, July, August, and September, 1951. That called for real doing, because, at that time, government was attempting to reduce the number of industries benefiting from such priorities in the hope of saving the cracking system. And so my first attempts were not well received because they ran contrary to the general thinking of the time. Nevertheless, we went ahead with our work, guided by the following principles:

1) That the agency best qualified to determine the requirement for farm machinery is the U. S. Department of Agriculture.
2) That any priority extended to the industry must obviously be coupled with an appropriate limitation upon production.
3) That the method employed for production control should relate only to materials required and not extend to specific products control such as existed during the last war.
4) That any priorities and limitation given for and upon the production of farm machinery must operate in such a manner as to:

A. Express a program for a 12-month period.
B. Maintain the relative competitive position of all manufacturers in the industry.

From this concept, order M-55A which was to govern the July, August, and September period was evolved and proposed to the mobilization chiefs. A base period July 1, 1949, to June 30, 1950, was selected, because in our opinion it represented the freest market from the standpoint of sales or the procurement of material that had existed in the industry since the year 1940. During the same period the industry was relatively free of strikes in its own plants or strikes in the plants of its suppliers. And finally, the production of farm machinery during that period closely approximated the farm machinery output as requested by the U. S. Department of Agriculture. On May 11, 1951, order M-55A was issued, and again it represented, not a mere token, but the deep-seated conviction of all government agencies that production of farm equipment is essential in our economy.

To the best of my knowledge, Order M-55A issued under the priorities system then in effect, if continued for 12 months, would have provided for the delivery of materials to the farm equipment industry in quantities sufficient to produce 96 per cent of the product manufactured during the calendar year 1949.

During the time Order M-55A was being developed, we heard only that CMP, the Controlled Materials Plan, was being considered. Those of us who had worked with the CMP system during the last war were aware of the difficulties such a system would encounter at the time it was made effective. We were not aware of the magnitude of these difficulties when CMP is used under the conditions of a rearmament program as compared to a period of total war. But we had the feeling, and I still share the belief, that the only proper answer to the allocation of materials (if materials must be allocated) is the Controlled Materials Plan.

Nevertheless, the sudden announcement last May that the Controlled Materials Plan would be made effective July 1st placed a heavy and unanticipated burden upon all of the NPA and DPA organizations. There was a terrific scramble to organize and train people capable of analyzing and issuing CMP applications, and, of course, with the introduction of CMP, Order M-55A was

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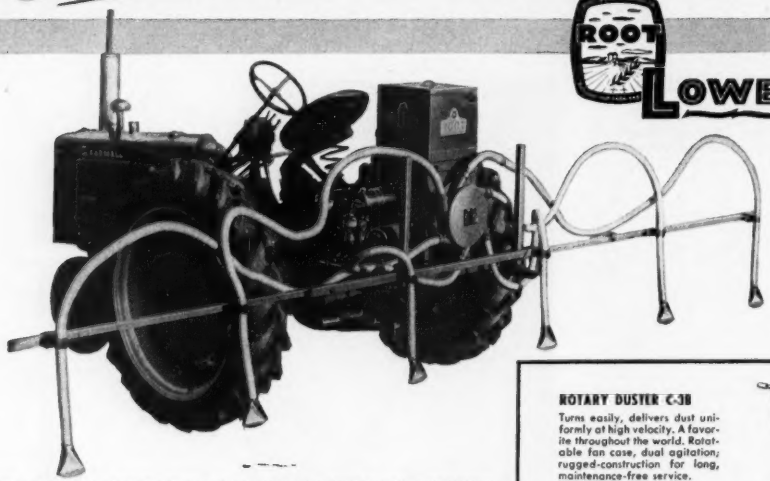

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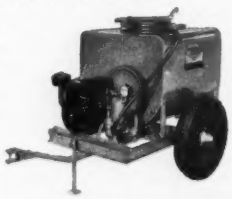

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no longer needed and shortly thereafter was rescinded.

And now, with such background, I propose to give you the statistical information which you may use to agree or to disagree with my conclusions.

The farm equipment industry as organized in NPA is made up of approximately 1600 manufacturing companies —a rather surprising number to one who is uninformed on this subject. The different kinds and types of machinery and equipment are legion and include generally garden and wheel tractors (not the crawler type), harvesting, tillage and planting equipment, barn and barnyard equipment, farm elevators, water systems, pumps, spraying and irrigation equipment, farm dairy equipment and, of all things, saddlery hardware, poultry tags, pig rings and a host of other miscellaneous items.

Of the 1600 companies, only 220 are members of the Farm Equipment Institute and less than half of the 1600 companies make regular reports to the Census Bureau. And so at best, available and usable figures can only be approximations. Nevertheless, we had to have some guide posts in order to determine the effect of our actions.

During the early part of World War II, the Farm Equipment Institute, under request from government, made a statistical study to determine the amount of steel, copper, and aluminum essential to the production of farm machinery.

During 1950, that study was brought up to date. Revisions were necessary because of changes in design and technology, and the new study represents the basis from which government worked, at least while I was there, on the problem of farm equipment production, and is the basis for my conclusions in this paper.

The current study, submitted to Washington in November, 1950, asserted that the farm equipment industry would require 690,000 tons of steel each quarter year to manufacture its product at the rate produced in 1950.

This figure, which has yet to be seriously challenged, includes carbon, alloy, and stainless steels and also sufficient steel for "A" and "B" components. Under the present scheme of things, an industry must claim steel for "A" components, but not for "B" components.

Shortly after NPA had arrived at some degree of stability as to which components were in the "B" classification, the industry supplemented the study, this time through the employment of a Certified Public Accounting firm, to determine what part of the 690,000 tons required is represented by "B" components. The job, done by sampling, shows that 11.3% of the steel requirement is for "B" components. By subtracting this percentage, we find that the industry must have 612,000 tons of steel per quarter to equal the 1950 rate of poduction.

But the U. S. Department of Agriculture had asked for the 1949 rate and not the 1950 rate. We had to relate the steel requirements of the 1950 rate to the request of the U. S. Department of Agriculture. Census figures and Bureau of Labor statistics were not current enough to do the job while figures from the American Iron and Steel Institute were inadequate because of large purchases of steel from warehouses and conflicting inventory positions of the various companies.

To resolve this question, the Farm Equipment Institute employed a firm of Certified Public Accountants to determine the tons of farm equipment produced by companies by months from January 1, 1949 through March 31, 1951. This research, covering 76% of the industry, gave us the following relationships:

1.) That Order M-55A represented 96% of 1949 production.
2.) That 1950 production was 94% of 1949 production
3.) That first quarter 1951 production, annualized, would equal 108% of 1949 production.

These relationships permitted us to calculate the number of tons of steel required per quarter to permit the industry to manufacture at the 1949 rate. This requirement we found to be 651,000 tons. By comparing that figure with the total tons of steel allocated, we may determine the direction in which we are travelling.

For the third quarter of 1951, the NPA allocated to farm equipment manufacturers a total of 655,400 tons or 6,600 tons more than the 1949 requirement.

Do you recall that during the first quarter of this year the industry was producing at the rate of 108% of the 1949 rate? It is my belief that the first quarter rate was fairly well maintained during the second and third quarters and, for that reason, I believe, and I am sure that the annual report of the industry will show, that more farm equipment was produced in 1951 than in the year 1949. So far then, government action has been helpful and has provided for farm equipment production in excess of the requirements as established by the U. S. Department of Agriculture.

Now we are concerned with 1952. Materials delivered in one quarter will mean products available to farmers in the succeeding quarter year. Allocation, then, of materials in the fourth quarter of this year and in the first, second and third quarters of next year will determine the volume of new farm equipment available to farmers in 1952.

For the year 1952, the U. S. Department of Agriculture through a nationwide survey has determined that farm equipment must be available in an amount equal to 115% of the 1949 production in order for agriculture to meet its very high crop goals.

Using the statistical method employed to determine 1951 requirements, we readily find that, on the basis of the new claim, 750,000 tons of steel will be required per quarter to reach the new goal. Against this requirement, the NPA allocated in the fourth quarter of this year 587,000 tons of steel and for the first quarter of 1952 an allocation of 544,000 tons. Such action tells us that farm equipment production in 1952, if allocations are not increased in the second and third quarters, will be:

25% less than the claim of the U. S. Department of Agriculture;

20% less than the 1951 rate of production; and

13% less than the total products produced in 1949, all representing a very dangerous downward curve in the probable 1952 production of farm equipment—the machine tools of agriculture.

The conclusions I have given you are properly subject to certain practical and fundamental objections.

The first objection is that it presumes that an allotment of material means that the material will be delivered. This is far from the truth. The fact is that few companies, if any, have been able to obtain the full amount of materials allotted. The degree of success has varied with companies and the amount of resulting production difficulty has not been uniform because of the varying inventory positions. Nevertheless, the goals for 1951 were met, but at the expense of raw materials inventories, which have been steadily reduced and will not be available to take up the slack caused by insufficient allocations or failures in delivery during the present and succeeding quarters.

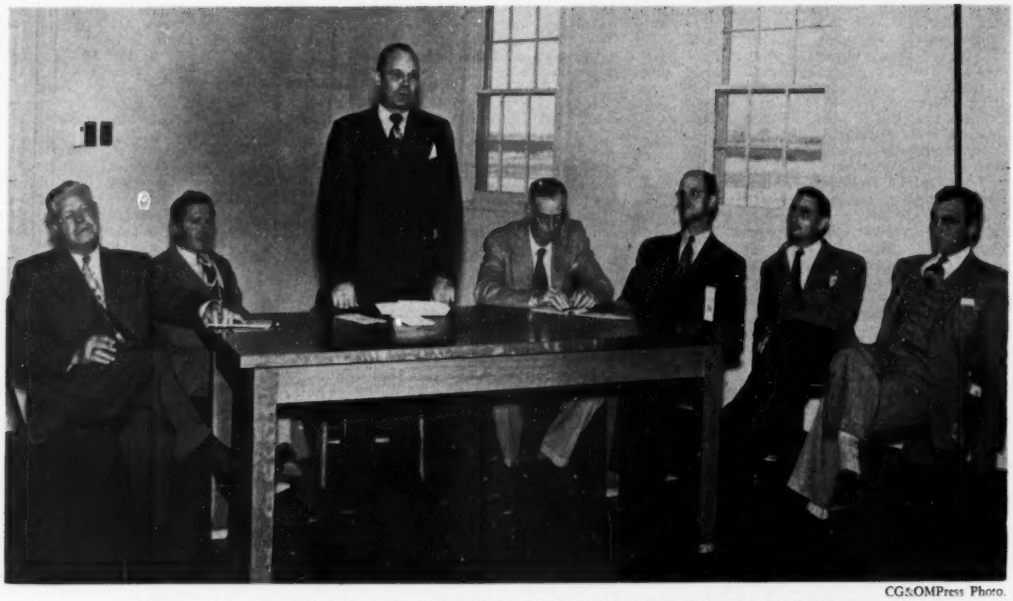
The other practical objection is that my account has been based solely upon allocations of steel. You know that copper and aluminum, both vital to farm equipment production, are in shorter supply than is steel.

In the third and fourth quarters of this year, and again in the first quarter of next year, the NPA has not allocated sufficient copper and aluminum to match up with the steel granted. Just as a chain can be no stronger than its weakest link—the metal in shortest supply controls production. I am told and believe that this may result in a stil further loss in production amounting to 10 or 15 per cent. Lack of copper is particularly felt in the tractor industry or with any product that requires engine power. Lack of aluminum seriously affects the production of irrigation equipment, and certainly the production of cotton picking machines, in which you are particularly interested. I have not been able to obtain reliable information concerning requirements of copper and aluminum and must be content with the observation that there will be insufficient copper and aluminum allotted to match up with steel allocations.

It is a matter of interest to this group that under Order M-55A and under the present method of control, manufacturers of farm equipment are permitted, to a large degree, to shift from the production of one tool or machine to production of another tool or machine. I know as a matter of personal knowledge that cotton strippers and cotton pickers have been increased in production by the several manufacturers up to 300 and 400 per cent of the 1950 production. I know that The Oliver Corporation—and I have been told that other companies —have increased production schedules of other tools and implements specifically used in cotton production. But like borrowing from Peter to pay Paul, this shift in production has been done at the expense of other types of machines and there are practical limits in the extent to which this policy can be followed.

As specialists in cotton who have benefited by this shift of production in your favor, you realize that necessity may one day, sooner or later, cause a shift the other way, in favor of some other specialist. In any case, you know that *all* agricultural producers who depend upon mechanized farm equipment will suffer, and suffer seriously, if their great supplier industry is crippled by raw material shortages. Such a possibility can have only one of two results, and neither would be in your favor or in furtherance of a sound national eco-

(Continued on Page 66)



CG&OMPress Photo.

First panel members, left to right: J. L. Hipple, E. R. Holekamp, Panel Leader Kyle Engler, W. E. Meek, A. S. Milikien, Joe H. Scott, Jr., and Fred D. Sawyer.

Mechanization Conference Report

First Panel Discussion:

Cultural Machinery

■ **Following are statements by participants in the first of two panel discussions on the final day of the Conference, Nov. 9. This discussion was in charge of Kyle Engler, Head of the Department of Agricultural Engineering, University of Arkansas, Fayetteville.**

Kyle Engler

Head, Department of Agricultural Engineering, University of Arkansas, Fayetteville.

The term "cultural machinery" will be implied to mean all machines used in the production of cotton with the exception of harvesting. Our panel is made up of men well qualified by experience to discuss this problem.

As an introduction to the panel discussion, I would like to point out that questions from the floor suitable for discussion will include land preparation for proper drainage and water control; disposal of crop residue; seed-bed preparation and planting; weed and grass control by chemicals, flame, mechanical cultivation and even geese; and the application of fertilizers. Other questions that may come up can be freely discussed.

The problem of cultural machinery must be considered by areas, as our Cotton Belt extends from coast to coast and from Gulf to Missouri. Consequently, we can expect two or more correct answers to many of the questions asked. For example, we consider weed and grass control our major problem in Arkansas, while harvesting and ginning are likely to be the major problems in the "high plains" area.

The question of flame cultivation is likely to come up for discussion. It is my opinion that the flame cultivator is again being used to good advantage. It was first sold as the complete answer to all problems encountered in weed and grass control. Now it is recognized as just another good aid in the problem and as such will receive much more favorable acceptance by cotton growers.

Our own experience is that, with the combination of chemicals, flame and mechanical cultivation and favorable weather, cotton can be produced weed- and grass-free without the hoe. However, don't throw away the hoe, as favorable weather is not the common thing.

The final solution of our cultural problem will come about through the continued cooperation of our machinery manufacturers, organizations, research workers, extension personnel, machinery dealers, and our patient and very much alive farmers.

W. E. Meek

Senior Agricultural Engineer, Cotton Mechanization, BPISAE-USDA, Delta Branch Experiment Station, Stoneville, Miss.

The need for "know-how" supervision on the farm is one of today's most pressing problems. With the trend toward newer techniques and methods, this problem becomes more and more important. Industry, research agencies, colleges and extension services all recognize this educational problem and are agreed that they must join hands in its solution. Much good work is being done but more is sorely needed.

The old, old method of allowing droves of geese to feed on the grass in the cotton field is still being used and, in some areas, is on the increase. At the same time, the use of flame and chemicals is increasing rapidly and the trend is strongly toward the expansion of these two measures. Flame, introduced a few years back, became quite popular and then for several reasons lost some of its popularity. High fuel costs and inefficient machines were probably the two major reasons for this decline in popularity. With the reduction in price of L-P gases for fuel and with engineering improvements in the machines, coupled with an acute shortage of labor, today we find flame again on the increase in many parts of the Belt.

Chemicals—both pre- and post-emergence—are rapidly coming to the fore. It is estimated that about one million gallons of chemicals for weed control

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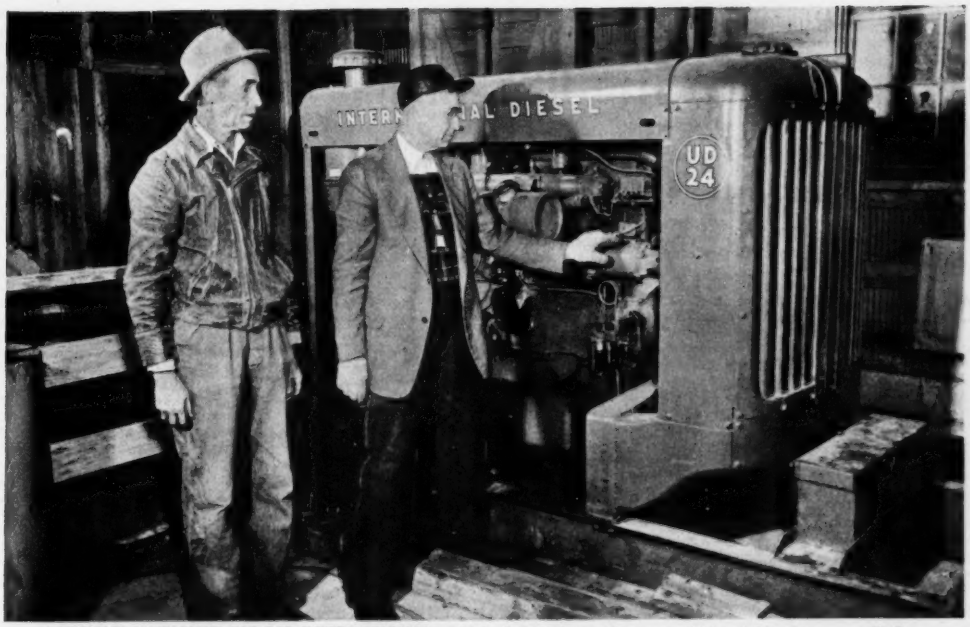

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At Dallas Meeting on Nov. 17

Texas Ginners Give OPS Their Views on Price Controls

■ TEXAS ASSOCIATION officials insist on decontrol of ginning industry in 1952, but offer suggestions in event decontrol is not granted.

AT A MEETING in Dallas on Nov. 17, Office of Price Stabilization officials were told that the Texas Cotton Ginners' Association is joining with the National Cotton Ginners' Association in asking for decontrol of the ginning industry in 1952. The meeting, which was requested by the Dallas OPS office, was attended by officials, members and associate members of the Texas association. Representing the Dallas office of OPS were R. G. Berle, chief, Industrial Materials and Manufactured Products, and Thomas J. Murray, chief, Services Export and Import.

W. O. Fortenberry, Lubbock, who is president of the Texas association and the National Cotton Ginners' Association, presided at the meeting. In his opening statement Mr. Fortenberry said, "I have a dual purpose today—to protect the National and Texas ginners . . . As usual, not only Texas ginners, but ginners across the nation have many problems, and one of them is to get a definite program started for either decontrol or price ceilings in 1952. Ginners have been working under OPS on the 1951 crop with more or less satisfaction and dissatisfaction, and in some cases the present program has worked satisfactorily and in some instances unsatisfactorily. We believe that a more satisfactory program can be worked out if we start in time and study the subject until a conclusion is reached."

"The only purpose of this group," Mr. Fortenberry continued, "is to study Texas problems. At a later date we hope to have a meeting with OPS officials in which all the ginners of the nation will be represented."

Mr. Murray stated the position of the Dallas office of OPS when he said, "We are here to try to assemble information that we will be able to give to Washington in case you are not decontrolled. We have nothing whatever to do with decontrol. We want you to present information to us so that when we go into conference with Washington a gin regulation can be written that will be practical and workable. There will be an industrywide meeting before any regulation will be written." He said this meeting probably will be held in New Orleans early in 1952.

Jay C. Stilley, executive vice-president of the Texas Cotton Ginners' Association, presented results of a recent survey of Texas gins which show that the average revenue per bale ginned in 1950 was $11.265. Average cost per bale in that season, however, was $13.287. Estimated cost of ginning per bale in 1951, Mr. Stilley said, was $14.419. "The average revenue per gin per bale in 1950 was $11.265," he pointed out. "If the gins applied the full six percent increase allowed, this would only give them an average revenue of $11.941 per bale in 1951, whereas their 1951 costs per bale were $14.419. In order for the gins to recover this increased cost, an additional increase of 20.7 percent would be necessary."

Joe Briscoe, of Chickasha, Okla., pointed out that ginning rates in that state are set by the Oklahoma Corporation Commission. In 1950, he said, the ginning rate was 50 cents per hundred pounds of seed cotton, but figures furnished the Commission by reporting ginners showed that it cost 67.83 cents per hundred to gin cotton in that year. Oklahoma ginners, Mr. Briscoe said, reported an operating loss in 1950 of $2.77 per bale.

The Texas association is standing firm in its request for decontrol of the industry in 1952 but submitted to the OPS officials the following points of relief for Texas ginners in the event decontrol is not granted:

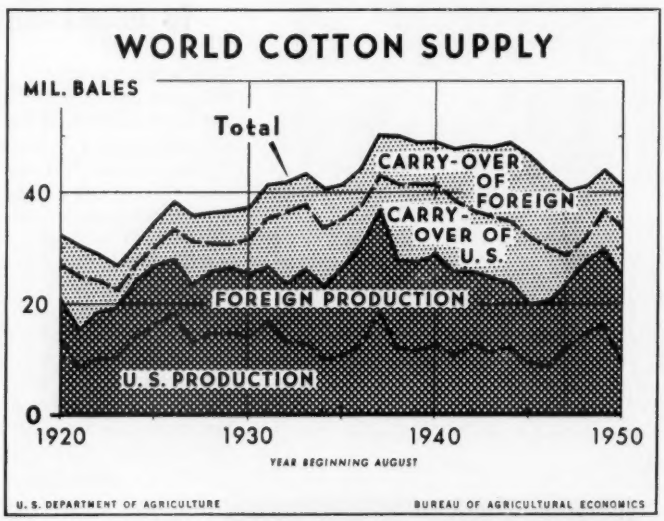
(1) A suggestion that the ginner be permitted to apply the same percentage markup to the cost of bagging and ties that he used in 1950. For example: If in 1950 a ginner bought bagging and ties for $2.20 and sold them for $3.45, he applied a markup of 56.8 percent, the markup including profit, labor, overhead on machinery, etc. The new regulation, the association said, should permit the ginner to apply this same percentage to his 1952 cost of bagging and ties.

(2) A suggestion that an equity clause be placed in the new regulations to give relief to ginners who were forced to charge a very low rate in 1950. Example: Some gins, due to local competition, a short crop, or other causes, could charge no more than 35 cents for ginning in 1950. Under the existing regulation, such gins could charge no more than 37 cents in 1951. It was suggested that, in the new regulation, gins that have been forced to charge less than 50 cents be permitted to increase their charges to 50 cents a hundred or more in 1952.

(3) A suggestion that gins be permitted to raise all charges for ginning and other services 15 percent over the highest price charged in 1951. Note: If the low-price ginners mentioned in the preceding paragraph were permitted to raise their charges to, say, 50 cents, the 50 cent figure could be increased by 15 percent.

(4) A suggestion that a simplified method be adopted for ginners that apply for relief in hardship cases, and that such applications be handled by the regional offices of OPS. The Texas association said there should be written into the regulation a provision for gins in areas where conversion is made from hand-picked cotton to machine-harvested cotton to take an automatic increase in ginning charges of 10 percent over their existing rates.

In closing the meeting, Mr. Fortenberry said: "We want it clearly understood that the things discussed here today were entirely of a Texas nature. At the proper time we will confer with the National delegation and make every effort to join with the National asso-



The world supply of cotton in 1950-51 was estimated at about 42 million bales, five percent below the preceding year. This country's small crop in 1950-51 was largely responsible for the reduced total supply. From 1946 to 1950, the world supply averaged about five million bales less than in 1935-39, the decrease being split about equally between production and carry-over.

ciation in working out a program satisfactory to the entire Belt." Mr. Fortenberry made it clear that the Dallas meeting was in no way intended to establish a policy that might prove detrimental to any other section of the Belt. "We merely want to lend every assistance to a workable solution of the problems that will confront us in 1952, keeping in mind that many mistakes have been made and that there are many hardships in the present program. We hope that these mistakes can be ironed out," he asserted, "so that everybody will have a program in which all ginners can work in harmony with themselves and with OPS."

Attending the Dallas meeting were: Mr. Berle and Mr. Murray of the Dallas OPS office; Mr. Fortenberry; S. N. Reed, O'Brien, vice-president of the Texas ginners association; Mr. Stilley and his assistant, Miss Pixie Guild; C. L. Boyd, Tahoka; Leland Minich, Wichita Falls; Jerome Jalufka, Robstown; R. K. Phillips, Sugarland; Jack Lomax, Rio Hondo; Walter Evans, Jr., Lorena; Nolan Barmore, Loraine; J. W. Simmons, Jr., Dallas; E. F. Czichos, Dallas; Mr. Briscoe; and R. Haughton and Ivan J. Campbell, The Cotton Gin and Oil Mill Press, Dallas.

Woodson-Tenent Will Open Lab at Clarksdale, Miss.

Woodson-Tenent Laboratories, Memphis, Tenn., will open their seventh laboratory Jan. 1 in Clarksdale, Miss., E. H. Tenent and P. F. Woodson, owners of the firm, have announced.

Harvey Lee Hutton, who has been at the firm's Cairo, Ill., laboratory for the past four years, will be in charge of the new laboratory.

The Clarksdale laboratory will specialize in analyses of cottonseed and cottonseed products, soybeans and soybean products, feeds, and germinations of all types of seed.

The firm operates other laboratories at Little Rock and Blytheville, Ark., Cairo and Decatur, Ill., and Des Moines, Iowa.

Heavy Cotton Seedings Give Better Stands

Heavy seeding of cotton—at a rate as high as a bushel (about 32 lbs.) or more per acre—assures better cotton stands on compacted soils of the high plains of Texas, according to research findings of engineers and scientists of USDA and the Texas Agricultural Experiment Station.

Through their combined efforts, the thickly planted seedlings are better able to force their way through the soil crust. The engineers believe the results will apply in other areas where rains tend to crust the soil.

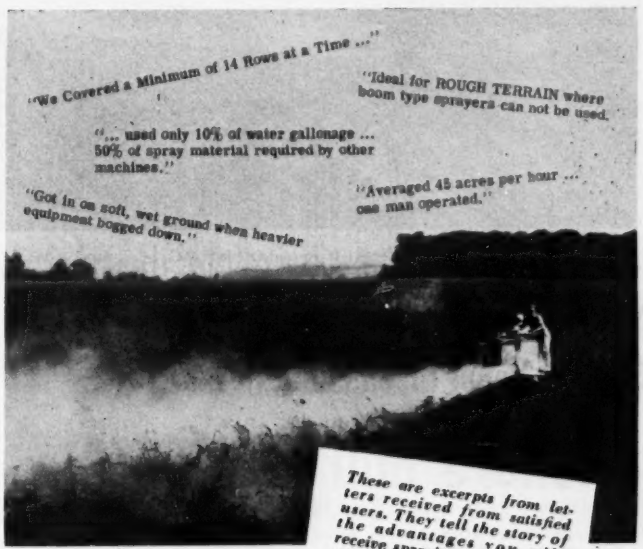
Insects Cut Guatemala Crop

Infestation of cotton boll weevils in October has caused severe damage to the 1951-52 cotton crop in Guatemala and may result in a reduction of about 30 percent from the earlier estimate of 12,000 bales (of 500 pounds gross) to slightly more than 8,000 bales. Daily rains during the period hampered control efforts, washing off the insecticides before they could be effective.

Exports of Egyptian Cotton Decrease

Exports of cotton from Egypt during August and September 1951, the first two months of the 1951-52 season, amounted to less than 76,000 bales (of 500 pounds gross), or only 28 percent of the 270,000 bales exported during the corresponding months of 1950-51. Almost 25,000 bales have been shipped to Rumania in 1951-52 under terms of a barter agreement, while 13,000 and 12,000 bales were exported to France and India, respectively. The decline in exports is attributed to the high level of Egypt's cotton prices during 1951 prior to September. Stocks were well above the minimum needed to meet export demand.

The most recent official estimate of 1951-52 cotton production in Egypt places the crop at about 1,600,000 bales, somewhat below the first official estimate of 1,697,000 bales released Oct. 3. This recent estimate was about nine percent below the final estimate of 1,754,000 bales produced in 1950-51. Members of the trade were generally forecasting an increased production this year, since the area planted to cotton increased slightly from 2,050,000 acres in 1950-51 to 2,055,000 during the current season and improved growing conditions during this season were expected to result in higher yields.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"Averaged 45 acres per hour ... one man operated."
"Got in on soft, wet ground when heavier equipment bogged down."

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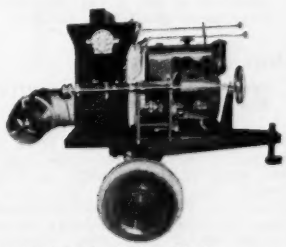

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Second panel members, left to right: Wayne C. Liles, Merrill W. Roscoe, Panel Leader Don L. Jones, Herbert F. Miller, Marvin Hoover, John H. Stephens, and R. C. Fergason.

Mechanization Conference Report

Second Panel Discussion:

Pickers and Strippers

Following are statements by participants in the second of two panel discussions on the final day of the Conference, Nov. 9. This discussion was in charge of Don L. Jones, Superintendent of the Texas Agricultural Experiment Substation, Lubbock.

Don L. Jones

Superintendent, Texas Agricultural Experiment Substation, Lubbock.

In 1914 picket or snow fence was utilized to salvage the cotton crop of that year. Again, in 1926, the Plains farmer was confronted with another emergency. The home- and blacksmith-made sled-type of horse-drawn stripper evolved. Metal teeth were substituted for the wooden picket fence used in 1914. The teeth were mounted on a box called a sled and the sleds were, in turn, often mounted on wheels. Later the sleds were widened to accommodate two sets of teeth so that two rows could be harvested simultaneously. Two types of stripper, finger and slot, came into use, From the slot type of stripper has evolved the present-day revolving roller while the finger type remains essentially the same.

The first tractor-mounted, power-driven stripper appeared in 1932 and by this time the basic stripping principles—the fingers and the roller—were well defined. With the basic harvesting principles established, the problem was to study both the engineering and limitations of the cotton plant to successful harvesting, as one influences the other. Evaluation of the stripper could only be determined under varying field conditions, and this emphasized the relationship between the machine, plant type and cultural practices.

Each component part of the stripper needed individual study from the standpoint of design, manufacturing, and field performance. This involved the following:

Stripper (1) Roller type: smooth, serrated and pin. (2) Fingers: length, width, size and angle. (3) Doffer plates or stripper bar: width and position. (4) Conveyors: width, type, length and angle of perforations for ease of movement and elimination of trash. Provision for position of trailer elevator for turning. (5) Stripper throat opening: adjustments. (6) Plant lifters. (7) Adjustments for varying heights of cotton. (8) Utilization of power take-off.

Cotton Field practice brought into sharp focus the need for certain modifications of the cotton plant and cultural practices such as: (1) storm-proof boll; (2) a semi-cluster plant type; (3) plants with strong central axis; (4) 40-inch rows; (5) close plant spacing; (6) defoliation.

As the stripper comes into widespread use in areas that do not have the uniform conditions of the Texas High Plains, certain modifications and improvements both for better use on the High Plains and throughout other areas where it might be adapted are needed, such as: (1) provisions for making short turns; (2) ease of mounting; (3) adaption to different makes of tractors; (4) height of cotton; (5) green-boll traps or eliminators; (6) fenders; (7) longer rows for efficiency; (8) clean cultivation; (9) prevention of pulling up cotton stalks and clogging; (10) dependable defoliants under the wide range of climate and growth conditions encountered.

Marvin Hoover

Cotton Specialist, California Agricultural Extension Service, Shafter.

More than 3,000 mechanical cotton harvesters are expected to be used in this year's harvest of California's record cotton acreage. For the past few years California cotton growers have been buying all the mechanical pickers made available in their area.

Economic studies by the University of California and by the United States Department of Agriculture for the harvest seasons of 1946, 1947, 1948 and 1949 have all shown that the total cost of harvesting cotton by machine is considerably less than the cost of hand harvesting. The latest survey of owner operated machines showed a difference in favor of machine picking to be $18.83 per bale.

(Continued on Page 79)

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World Report:

Peanut Production To Remain High

World peanut production in 1951 may establish a new record, tentatively forecast by USDA's Office of Foreign Agricultural Relations at 11.3 million short tons of nuts in the shell, on the basis of preliminary data from the principal producing areas. This is slightly larger than the 1950 output, revised to 11.2 million tons, but represents an increase of almost 20 percent from prewar.

Peanut crops in Africa are expected to be very good this season and probably will offset shorter crops in India and the U.S. Furthermore, the increase in Africa is particularly significant because Africa now is the major world source of surplus peanuts. The volume of peanuts and peanut oil entering foreign trade channels in 1952 therefore should be considerably larger than in 1951.

• **United States** — Production in the U.S. is estimated at 819,000 tons from 2,255,000 acres, according to the official crop report of Nov. 1. This is a decrease of 19 percent from 1950 and the smallest crop since the 1941 outturn of 737,600 tons. The area indicated for harvesting nuts also is the smallest since the 1,900,000 acres harvested in 1941. Extended hot, dry weather in some areas and untimely rains in other areas reduced the overall yield per acre to 726 pounds compared with 887 pounds last year.

• **Asia**—India's peanut crop may not exceed 3,500,000 tons, though an early official estimate was 3,730,000 tons. Drought conditions were prevalent during early fall in some important growing areas of Madras, Bombay, Hyderabad and Saurashtra states. In addition, lack of timely rains and Mawka disease have combined to reduce earlier crop expectations. The estimated outturn of 3.5 million tons represents a decline of 230,000 tons or six percent from the 1950 crop but a six percent increase from the prewar average.

There is no exportable surplus from the 1951 peanut crop, except that a small artificial surplus has been created by the government to meet commitments under bilateral trade agreements and to retain in part India's position as an exporter of peanuts and oil.

China's crops during the past two years may have been somewhat larger than the 3,224,000 tons produced in 1949. However, reliable statistics for these years are not available.

The peanut harvest in Indonesia (Java and Madura) is estimated at 300,000 tons, representing a slight increase from 1950 and the prewar average. Plantings were reported to have been above average during the latter part of 1950.

Burma's peanut harvest is placed at 165,000 tons from a matured acreage of 695,000. This is a slight increase from the previous year but still somewhat short of the prewar level. Acreages of principal oilseed crops, of which peanuts is the most important, increased this year because of the shortages of edible oils in Burma—resulting from restrictions on exports of peanut oil from India.

• **South America** — Growing conditions in Argentina during the 1950-51 season were reasonably good and the peanut crop was unofficially estimated at 132,000 tons from about 225,000 harvested acres, compared with the official estimates of 100,000 tons from 193,000 acres in 1949-50.

Brazil's output is unofficially estimated at a record 160,000 tons, or one-fourth larger than in 1950. Production centers largely in Sao Paulo, which has an estimated crop of 138,000 tons compared with 22,000 tons for the rest of Brazil.

The increase in Sao Paulo production in recent years has been due largely to favorable prices resulting from a decrease in the production of cottonseed in central Brizil and greatly increased demand from domestic consumers.

• **Africa**—French West Africa's peanut production has been reported at an estimated 854,000 tons, some 190,000 tons or 30 percent more than last season's small outturn of 660,000 tons (revised). Recent rains in Senegal, which were very heavy for this time of the year, may have done considerable damage, but on the whole the weather for the year has been good. Moreover, this year's output increased as a result of the greater number of migratory farmers who went to Senegal from Sudan for this season, having been encouraged by the high prices paid for peanuts last year.

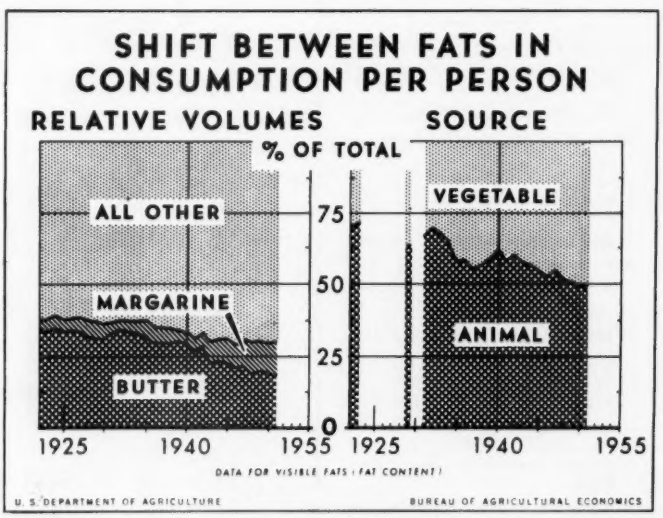
The commercialized tonnage of this season's crop is estimated by leading peanut buyers in Dakar at about 640,000 tons compared with about 435,000 tons from last year's crop.

The harvest in Nigeria may approximate 600,000 tons. Recent developments in the crop have not been reported as yet, but early estimates based on a good growing season placed the volume for export at 280,000-336,000 tons of shelled nuts (about 420,000-500,000 in terms of unshelled). Purchases by the Groundnut Marketing Board from last season's crop amounted to only about 155,000 tons (232,000 unshelled). A crop of 600,000 tons would represent a 50 percent increase from the small outturn of 1950.

Production in the Belgian Congo has been reported at 198,000 tons against 180,000 last year and about 65,000 prewar. Peanuts are now produced in all the Congo provinces and are one of the most profitable crops grown by the natives. In certain parts of the Congo, in the eastern province for example, consumption is increasing markedly and exports consequently have dropped. Efforts are being made to improve yields and increase mechanization.

In the Union of South Africa, the 1951 crop of peanuts, principal oilseed produced, is stated to be a record and is unofficially estimated at 125,000 tons compared with 90,000 tons in 1950. Natives are not important producers of peanuts except in the Eastern Transvaal, where ordinarily their production would be approximately 15,000 tons a year. This year, however, drought in that area adversely affected native production and their total contribution to this year's crop is not expected to exceed 1,500 tons.

• **Australia** — Australia's 1951 peanut crop amounted to 8,800 tons, or only slightly less than the 1950 outturn. The bulk of the crop is produced in Queensland, but acreage is expanding rapidly in New South Wales.



The increase in margarine consumption in the last decade has offset only about half the decline in butter. Other fats and oils apparently have replaced butter to some degree in certain non-spread uses, such as in cooking. In the past three decades there has been a major shift from use of fats and oils of animal origin (mainly butter and lard) to those products made from vegetable ingredients. In most years, consumption per person of (visible) fats and oils in total has ranged between 42 and 44 pounds, fat content basis. Apparent consumption in 1950 was unusually high. The increase largely reflects accumulation of inventories in unreported positions.

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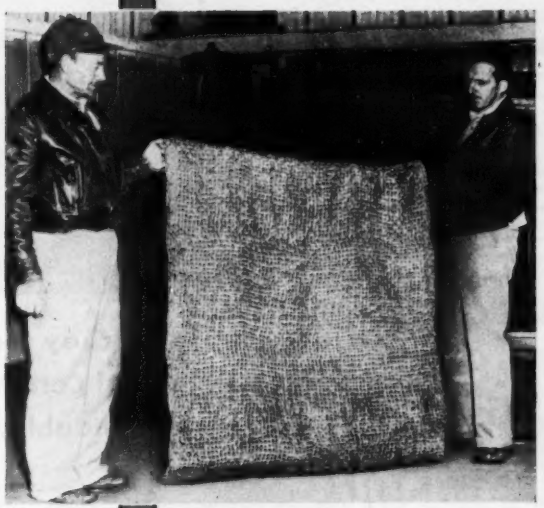

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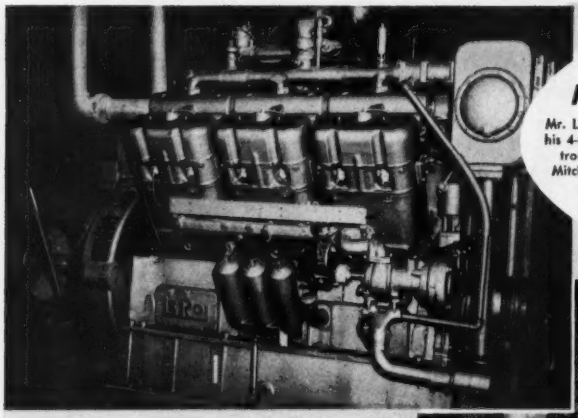
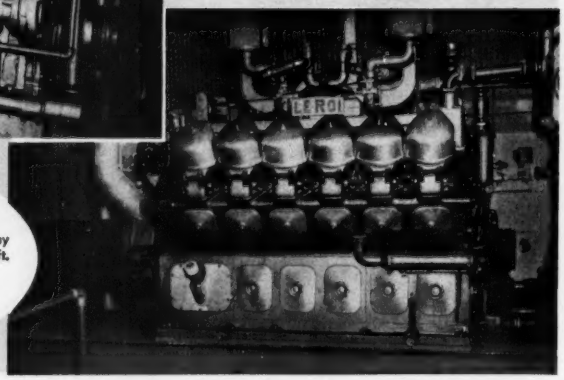


Peach Orchard Gin— Peach Orchard, Missouri

Mr. L. C. Grugett uses this Le Roi L3000 engine to power his 4-80 saw Continental with Burr machine, tower dryers, trough dryers, over-head cleaners, impact cleaners, Mitchell feeders and cleaners, hydraulic pump and press.

He states, "We would certainly recommend a Le Roi to anyone needing power for a cotton gin."



Edmondson Gin— Hornersville, Missouri

This modern Le Roi L3460 powers a 5-80 saw Murray gin, 30 cylinders of cleaning, 3 tower dryers, 2—14 ft. Burr machines, lint cleaners, and 14 fans.

Mr. Edmondson says he has plenty of surplus horsepower and recommends Le Roi to anyone needing plenty of horsepower for modern ginning.

They're from Missouri

...and they both recommend Le Roi Cotton Gin Engines for dependable, low-cost power

WHEREVER there's cotton you find more ginners who insist on Le Roi engines than on any other engine. They know that they get these advantages:

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Dependable operation — guided valve-stem mechanism, heat-resisting valve inserts, and good cooling give long valve life. Conservative power ratings assure long engine life.

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Le Roi cotton gin engines range in size from 40 to 450 hp — these are continuous ratings. From this outstanding group you can pick the engine that fits your needs — an engine that gives you lower costs per bale. Have a Le Roi distributor show you a Le Roi installation — and see for yourself why Le Roi's cost less to own and operate.

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Tri-State Equipment Co., Little Rock, Ark., Memphis, Tenn.
Nortex Engine & Equipment Co., Wichita Falls, Texas
Farmers Supply, Lubbock, Texas

A. S. CARTWRIGHT

JOHN T. GORDIN

J. J. WALLACE

Cartwright New President of Gullett; Gordin, Wallace, Glidden Move Up

AT A MEETING of the board of directors of the 102-year-old Gullett Gin Company at its home office in Amite, La., on Oct. 12 A. S. Cartwright was named president, succeeding J. W. Bostick, who resigned. Mr. Cartwright formerly was vice-president and secretary-treasurer of the company.

John T. Gordin, Dallas, was elected executive vice-president and general sales manager. J. J. Wallace, who was superintendent, was named vice-president in charge of manufacturing. L. B. Glidden, who was comptroller, succeeds Mr. Cartwright as secretary-treasurer.

Mr. Cartwright has been with Gullett since 1904, when he went to work in the company's Memphis office as a stenographer. In 1907 he was transferred to Amite where he did general office work. He later was named secretary-treasurer and in 1944 was elected vice-president of the company.

Mr. Gordin has been with Gullett in the Dallas office since June 1932. Like Mr. Cartwright, he went to work as a stenographer. He was named assistant sales manager of the Dallas district in 1937 and succeeded the late B. P. Moore as sales manager in January 1941. He has been a director of Gullett Gin Company since February 1950. Mr. Gordin expects to move to Amite in the near future.

Mr. Wallace went with the company in 1912 and was named superintendent of production in 1926. Mr. Glidden, the new secretary-treasurer, went to Amite from Dallas during the past year.

Gullett Gin Company has a colorful history in the cotton gin machinery field. A North Carolinian, Benjamin David Gullett, built his first shop at Aberdeen, Miss., around 1840 and was operating under a corporate name in 1849. He later set up a branch shop at Marshall, Texas, but had to close it because of the Civil War.

The War also forced Mr. Gullett to close down his Aberdeen plant, but he moved to New Orleans where he hoped to continue making gin machinery. Union forces later occupied the city and the commanding officer ordered Mr. Gullett's arrest to prevent him from making badly needed ginning machinery. However, Mr. Gullett escaped from New Orleans and moved north to Amite, the present site of the company's manufacturing plant.

In 1886, five years after Mr. Gullett's death in 1881, Ellis H. Bostick went with the company as general manager and later was named vice-president, then president. Mr. Bostick was named board chairman in 1943 and was succeeded in the presidency of the company by his son, J. Wallace Bostick.

Gullett maintains district sales offices at Dallas, Atlanta and Memphis.

Delta Council Endorses Cotton Price Support

Expressing the conviction that American farmers should not be expected to bear all of the risks involved in furnishing supplies of cotton to countries of the free world, Delta Council directors on Nov. 16 endorsed efforts to seek support prices for cotton in keeping with greatly increased costs of production.

The motion followed a report by Agricultural Committee Chairman W. M. Garrard, Jr., and a review of the Orderly Marketing Program by Dr. C. R. Sayre, vice-chairman of the Agricultural Committee and chairman of the Beltwide Cotton Producers Steering Committee, at the Delta Council's mid-year meeting at Greenwood, Miss.

In discussing prospective cotton production goals for 1952, the directorate voted to request that a thorough study of the cotton supply and demand situation be made by the Beltwide Cotton Producers Committee and that a realistic production goal be recommended by the producer group for the coming crop year. Stress was laid on higher yields per acre as a sound approach to furnishing needed supplies.

"It is folly to put more acres in cotton than is consistent with adapted land, supplies of labor, machinery, fertilizer, and insecticides available to individual producers," Dr. Sayre stated.

Directors recommended a thorough study of the parity formula with the objective of revisions so that the formula will more nearly represent the true cotton picture. It was also pointed out that whenever export allocations were proclaimed USDA should take immediate counter action to protect producers from undue losses caused by sudden price drops resulting from the shutting off of normal export markets.

The group voted appreciation to Dr. Sayre for his work in steering the Orderly Marketing Program and a special vote of commendation to Gerald Dearing, market editor, *Memphis Commercial Appeal*, for his contributions to the cotton industry.

Greater utilization of domestic farm labor supplies, both interstate and intrastate, along with intensified efforts to close gaps in mechanization, were urged by J. C. Baird, Jr., chairman, Labor Committee, as steps toward reducing the need for foreign workers to fill peak season farm labor requirements.

Citing the need for more trained farm workers, the directorate adopted a resolution calling on the Labor Committee to work with the Extension Service and the Vocational Agriculture Department to develop an effective on-farm training program to fill the demand for qualified tractor and self-propelled farm machinery operators.

Ecuador to Import Cotton

In view of the poor outlook for the Ecuadoran cotton crop in 1951-52, the government has authorized the import of about 2,000 bales (500 pounds gross) after the local textile industry has purchased the entire domestic crop. In addition, the 33 percent import permit tax on raw cotton has been eliminated temporarily. It is anticipated that additional imports of cotton will be authorized later.

Well Deserved, Too

Continental Gin Co. Honors Employees

■ THOSE WITH company five years and longer received gold buttons, pins and watches as evidence of company's appreciation for faithful service.

During the past two weeks Continental Gin Company has honored employees with five years and more of service in ceremonies at which newcomers and old-timers were given tangible evidence of the company's appreciation of faithful service.

Gold buttons were given to men with service records of from five to 34 years. To the women with five to 24 years of service went gold pins. Beautiful watches

In the Pictures

■ TOP—Shown are Dallas branch employees who received awards on Nov. 8.

■ SECOND FROM TOP — Seated are M. E. Pratt, Birmingham, left, president of Continental Gin Company, who made the awards, and Will C. Jones, Dallas, a director of the company. Standing, left to right, are G. P. McCarty, assistant district sales manager (9 years); E. B. Doerr, district sales manager (52 years); and H. F. Haslbauer, Dallas plant superintendent (27 years).

■ THIRD FROM TOP—M. E. Pratt, far right, is shown making awards to those receiving watches. Seated, left to right, are Miss Georgia Yost (26 years), Mrs. M. G. Roberts (48 years), and Mrs. Alice Bevans (26 years). Standing, left to right, are R. C. Fair (42 years), E. R. Johns, retired (39 years), C. W. Dobson (47 years), O. B. Brokaw (39 years), R. H. Moore (44 years), C. H. Huvelle (52 years), H. O. Pfeiffer, retired (36 years), and E. B. Doerr (52 years). Five employees who have earned watches were unable to be present when they were awarded. They are E. C. Moore, Sr., retired (43 years), P. O. Peterson (46 years), W. F. Watson, retired (49 years), W. H. Curtsinger (35 years), and E. M. Seaton, retired (51 years).

■ BOTTOM — E. B. Doerr and C. H. Huvelle have served the company a total of 104 years. They are shown here proudly displaying their watches.

were given to men with service records of 35 years and over and to the women who have served 25 years and longer. Each person receiving a watch was also given a button or pin showing the number of years he has been with the company.

Pictures on page 38 were made Nov. 8 when Dallas district employees received their awards. Similar awards were made at Memphis Nov. 9 and at Birmingham, Prattville, Ala., and Atlanta the following week. The company plans to continue this practice of honoring employees in the future.

Ark-Mo Ginners Initiate Fire Reporting System

In a concerted effort to secure lower insurance rates and to reduce the number of gin fires, ginners in Arkansas and Missouri are cooperating in a new program of fire reporting.

The reporting system is being launched with a two-fold objective: (1) to obtain a more thorough knowledge of gin fires and thereby reduce their number; (2) to assemble data to strengthen efforts toward obtaining lower gin insurance rates.

The reporting system, initiated through the Arkansas-Missouri Ginners Association, is the first of its kind in the Cotton Belt, according to W. Kemper Bruton, executive vice-president of the association. The association furnishes report cards to ginners in its states which they fill in and return after each fire, showing where the fire was first detected, what is believed to have caused it, ginning time lost and other pertinent information.

A check-off list on the report makes it easy for the ginner to complete the statement in a matter of minutes. Under a heading "Fire Was First Detected:" are squares for checking whether the fire was noted in: (1) wagon or trailer, (2) cotton house, (3) drier, (4) separator, (5) overhead cleaners, (6) line cleaners, (7) roll box, (8) bur extractor, (9) bale platform, (10) elsewhere.

A second heading concerns the cause of fires, with squares to be filled in and indicating if the fire is believed to have been caused by: (1) matches, (2) smoking, (3) rocks or metal, (4) friction in roll box, (5) mechanical failure, (6) overheating in drier, (7) defective wiring, (8) static electricty, (9) sparks from incinerator, (10) grass or weeds, (11) other. Another square is provided for the ginner to note if the fire was caused by a choke-up, with a blank to be filled in stating where the choke-up occurred.

Spaces also are provided for indicating ginning time loss due to the fire, the bale number at the time of the fire, and the name and address of the gin.

Insurance rates on cotton gins in both Arkansas and Missouri, as well as in most other states, are excessively high and it is believed that the accumulation of the data included in the new system will be invaluable in future state and national programs aimed at reducing these rates, Mr. Bruton said.

One of the greatest problems confronting the ginner in fire prevention is the carelessness of the cotton pickers in allowing foreign materials to get into the cotton before it goes to the gin, Mr. Bruton continued. Everything from horseshoes to spark plugs has been found in cotton and such objects almost always cause sparks and fires when they strike the rapidly moving parts of the gin, he added. Such carelessness contributes greatly to gin fires, which cost the industry approximately $30,000,000 annually and create high insurance rates.

Report on Cotton Ginning

Number of bales of cotton ginned from the growth of 1951 prior to Nov. 1, 1951, and comparative statistics to the corresponding date on 1950 and 1949.

State	Ginning (Running bales—linters not included)		
	1951	1950	1949
United States	*10,021,664	*6,465,490	*9,540,328
Alabama	833,533	462,817	729,579
Arizona	188,428	293,675	188,184
Arkansas	839,748	667,108	1,000,010
California	658,090	384,425	525,211
Florida	17,746	7,946	9,249
Georgia	836,742	428,945	494,390
Louisiana	668,276	365,842	495,292
Mississippi	1,381,995	1,072,082	1,083,171
Missouri	196,880	121,874	254,985
New Mexico	110,856	93,171	108,766
North Carolina	417,210	126,599	322,757
Oklahoma	224,348	108,926	235,074
South Carolina	748,292	369,982	462,998
Tennessee	367,775	248,992	410,745
Texas	2,521,376	1,800,068	3,203,566
Virginia	7,684	856	10,677
All other States	2,686	2,182	5,674

*Includes 223,566 bales of the crop of 1951 ginned prior to Aug. 1 which was counted in the supply for the season of 1950-51, compared with 283,243 and 297,843 bales of the crops of 1950 and 1949.

The statistics in this report include 10,970 bales of American-Egyptian for 1951, 16,539 for 1950, and 1,443 for 1949; also included are no bales of Sea-Island for 1951, none for 1950, and none for 1949.

The statistics for 1951 in this report are subject to revision when checked against the individual returns of the ginners being transmitted by mail. The revised total of cotton ginned this season prior to Oct. 1 is 5,466,148 bales.

Consumption, Stocks, Imports, and Exports—United States

Cotton consumed during the month of September 1951 amounted to 722,004 bales. Cotton on hand in consuming establishments on Sept. 29 was 1,049,283 bales and in public storage and at compresses 3,341,544 bales. The number of active consuming cotton spindles for the month was 20,714,000. The total imports for the month of August 1951 were 3,679 bales, and exports of domestic cotton, excluding linters, were 145,758 bales.

Cotton Gifts Await Maid Of Cotton Finalists

The 1952 Maid of Cotton contest finals won't be held until Jan. 3, but that day will be a second Christmas for the 20 lucky girls who are selected as finalists. There will be a bag filled with cotton gifts waiting for each of the pretty candidates.

Included in the assortment of gifts to be presented to the Maid of Cotton finalists are cotton gloves by Dawnelle; shoes and matching neckwear in giddy plaid gingham by Westport; cotton cosmetic travel kits by Dorothy Gray; cotton handbags by Colony; Guatemalan cotton skirts by Bates; a set of matching terry towels by the Cone Export & Commission Co.; a selection of fine cotton handkerchiefs; and a cotton fabric gift by Avondale Mills.

The 20 girls who go to Memphis Jan. 2-3 for contest finals will be selected early in December by a preliminary judging committee from the applications and photographs of Cotton Belt beauties who have submitted entries

Entries now are being received at the National Cotton Council, P. O. Box 18, Memphis, Tenn. To be eligible to become Maid of Cotton, a girl must have been born in a cotton state. She must be between the ages of 19-25, must never have been married, and must be at least 5 feet 5 inches tall. Contestants will be judged on the basis of beauty, personality and background.

Immediately after the 1952 Maid of Cotton is named, she will begin a six-month international tour as the official goodwill and fashion representative of the U.S. cotton industry, visiting more than 40 cities in the U.S., Europe, Canada and Latin America.

The Maid will make appearances at Medellin, Colombia; Lima, Peru; Buenos Aires, Argentina; Santiago, Chile; Rio de Janeiro and Sao Paulo, Brazil. She will spend several weeks in the southern hemisphere. Her flying trip abroad a Braniff International Airways "El Conquistador" airliner will be made sometime after she returns from Canada in mid-June.

In each city she visits throughout Latin America, the young cotton envoy will extend goodwill greetings from the 13 million members of the U.S. cotton industry to high government officials. She also will appear as featured model in cotton fashion shows to present latest developments in high-fashion cotton fabrics and styling.

The Maid will be presented a stunning all-cotton wardrobe by 30 leading designers to wear on her tour. At the close of her cotton journey she will be awarded a streamlined 1952 Ford convertible by the Memphis, Tenn., district Ford dealers.

Conference Will Study Chemical Weed Control

A conference to study methods of chemical control of weeds and grasses in cotton and to plan how this knowledge can be used most effectively in the coming season by farmers is scheduled at the King Cotton Hotel in Memphis, Tenn., Dec. 6 and 7.

General guides for cotton farmers in the use of chemicals to control weeds and grasses in cotton are expected to be released for the first time at the close of the conference.

Technical workers from concerns which manufacture herbicides will meet with researchers from Cotton Belt land grant colleges on the opening day of the conference to review results of weed control studies in 1951. These findings will serve as a basis for the chemical weed control guides for farmers in 1952.

At the general session on the second day of the conference, discussions are expected to include a summary of progress in chemical weed control and reports of experimental results in the Southeast, Delta, Southwest, and Far West cotton-producing areas.

The National Cotton Council, which is sponsoring the meeting, said conferees will include representatives of the cotton industry, agricultural chemical manufacturers, USDA extension services, experiment stations, land-grant colleges and the farm equipment industry.

From our Washington Bureau

By FRED BAILEY
Washington Representative
The Cotton Gin and Oil Mill Press

• **BAE Blunder on Cotton Forecast** — The Bureau of Agricultural Economics very probably has not heard the last of its million-plus bale cotton forecast blunder. Cotton states congressmen it has heard from are as sore as a boil. They figure it cost cotton producers plenty.

BAE officials are saying nothing officially, but privately many of them admit that "something went wrong" on Crop Board figures. Crop damage in October simply did not amount to the 1,160,000 bales indicated in the November report.

One or two, or a combination, of plausible explanations are offered. Either the Board grossly overestimated the acreage for harvest, or it failed to recognize the full extent of August-September drought damage in making its October forecast.

Many officials here think the main trouble was an overestimation of acreage. They contend that instead of 28,544,000 acres for harvest, the true figure should be not more than 27,000,000 acres. That could account for approximately a million bales of the decrease.

When the showdown comes in Congress, as many here think it will, BAE may be expected to freely confess an error, and plead that lack of funds makes accurate reporting extremely difficult. It may seek to turn the tables by telling Congress that if it wants more dependable reports it must appropriate the funds needed to do the work.

• **May License Exports**—The big change in the cotton forecast, largest for any one month in Crop Board history, did more than embarass BAE and make southerners mad. It put the Agriculture Department itself in a tough spot by upsetting a lot of plans.

It raised serious doubts as to whether unlimited exports can be continued, almost certainly not without reducing the reserve supply to dangerously low levels. And it raised a big question about 1952 acreage goals.

As of yet no decision has been reached on reimposition of export quotas or licensing. The present estimates of export and domestic demand would seem to indicate that the supply situation is at best no better than it was a year ago.

The total estimated cotton supply now is estimated at just under 18 million bales, including a 1951 crop of 15,771,000 bales and an Aug. 1, 1951, carryover of about 2,200,000 bales. Earlier estimates placed exports at six million bales and domestic consumption at 10 to 10.5 million bales.

That, of course, figures out to an estimated carryover next Aug. 1 of one and a half to two million bales. Cotton officials say steps will be taken, if necessary, to keep reserves at over two million bales. That is assumed to mean export licensing.

• **1952 Acreage Goal** — Cotton acreage goals for next year are again up in the air as a result of the lower 1951 crop forecast, although a decision likely will be reached in a few days.

Preliminary goals sent out for PMA state committee study some time ago were based on a desired crop of 16 million bales. That, the crop experts figured, would mean a 1952 acreage of around 26.5 million acres.

Now the question rises as to whether that was not also just about the size of 1951 acreage. The Department had hoped to shave about two million acres off 1951 plantings, to make room for more corn.

Instead of asking for a reduction, it now is probable that the Department will ask farmers to plant the same acreage next year as this. It will hope for a crop of 17 million bales or more, to boost reserves by at least a million bales.

There is talk, too, of boosting price supports in order to "encourage" a large 1952 acreage. There is considerable doubt here that the present 90 percent of parity support rate is high enough to warrant farmers undertaking production in the high-cost areas.

Brannan has the authority to raise supports to any level he deems necessary to obtain needed production. This year, for example, he put supports for certain types of long-staple cotton at 150 percent of parity. However, indications are he will wait and let Congress take the responsibility, if it chooses, for higher supports.

• **Brannan Is Stubborn** — Secretary Brannan is a hard man to discourage. It took practically a farm revolt to dampen his enthusiasm for the Brannan Plan, and now he is sticking by his guns on the almost equally controversial Family Farm Policy Review. Far from being discouraged, he says he thinks it was a good idea and that he intends to do it again.

The Secretary bared his fangs to critics and, speaking at the Grange annual convention in Atlantic City last week, declared that the Review "was highly successful in stimulating healthy discussion and debate among both farm and nonfarm people" and that anyway it produced worthwhile results.

Brannan flabbergasted the Grange by profoundly thanking them for their "suport and cooperation" in conducting the Review. The Grange, although less vitrolic than the Farm Bureau in condemning the Review, never has been regarded here as supporting it. The convention, following Brannan's talk, went on to adopt a resolution that fell far short of endorsing the Review procedure.

The Grange withheld approval of the Review procedure on the ground that government groups and employes are not the proper agencies for determining farm policies and programs. Brannan, however, insisted that those who have opposed the Review were "indulging in criticism for criticism's sake" and that this demonstrated that "the American system of family farming is in need of constructive attention and protection."

He also answered the question of what he is going to do with the Review, now that he has it. The Department's interpretation of the results, he said, will be made available for use in formulating recommendations on farm programs "if and when asked for by Congress." He added, however, that such recommendations will be identified as the Department's and not as the views of farmers.

• **Mexican Labor a Hot Issue** — There are indications that "all hell may break loose" when the National Farm Labor Advisory Committee meets here Nov. 28 and 29 to discuss with the Labor Department plans for a renewal of the Mexican farm labor agreement. There has been some ill feeling on both sides.

While the Conference is due to discuss the whole problem of farm labor, the Mexican agreement is expected to be the hottest issue up before the two-day session of about 125 government and non-government representatives from all parts of the country.

Government agency officials insist they intend to stick by their threat to let the agreement expire on Feb. 11, 1952, unless Congress adopts "adequate and forceful" legislation for dealing with wetbacks. They represent the Mexican government as being of a like mind. Their stand is: Close the border to wetbacks or you get no Mexican workers legally.

Labor Department officials say they are going to talk "cold turkey" to some Texas folks they accuse of helping formulate an agreement and "then going behind our backs to under-cut the agreement." They charge the Texans were ring-leaders in a "conspiracy" to lower the bars to wetbacks through hamstringing the Immigration Service.

Despite some hot tempers, it is believed here that some arrangement will be worked out to either continue the Mexican agreement or to renew it if it is allowed to expire. Something along the line of a modified Walter bill to tighten up the border is probable.

• **DiSalle May Quit, Too** — There are signs that stabilization officials have about reached two rather important conclusions, namely that (1) price controls don't make sense when there are plenty of goods to fill demand, and (2) price controls when the supply is short won't work without rationing.

Eric Johnston's statement accompanying his resignation as stablization director, to the effect that "allocations and credit controls" should be substituted for direct price ceilings "at the earliest possible moment," is a confession of error.

OPS Administrator DiSalle, however, is insisting that it would be dangerous now to remove controls because we can't be sure that inflation dangers are over. In the end, most observers here believe, DiSalle will come to agree with Johnston and also resign.

Cotton Drop Brings

All-Crop Production Estimate Down

All-crop production prospects declined slightly during October, chiefly because of reductions in corn and cotton. Mostly favorable conditions for maturing and harvesting late-growing crops in much of October, however, helped to maintain the volume at third highest of record.

In parts of Minnesota, North Dakota and Montana, wet conditions prevented completion of harvest of some small grain and flax, and in the northwestern Corn Belt salvaging of frosted immature corn was a problem. In most sections corn cured well, and harvest of soybeans, sorghums, rice and root crops proceeded rapidly, with harvesting losses at a minimum. Killing frosts occurred generally early in November, dipping deep into the South with snow or rain that was mostly beneficial to fall sown crops. In virtually all areas soil moisture is now adequate to ample. Fall seedings of grains, cover crops and new meadows are mostly in satisfactory to excellent condition.

A seven percent reduction in cotton prospects from the Oct. 1 estimate resulted when the effect of lateness of plantings, summer drought and insect damage became apparent as picking progressed rapidly. Slight decreases in expected outturns are shown for buckwheat, rice, potatoes, dry beans, peanuts, broomcorn, apples, and pears. On the other hand, rapid harvest of soybeans with a minimum of harvesting loss improved production prospects to 278 million bushels. Slight improvements over Oct. 1 forecasts are noted for sorghum grain, tobacco, sugar beets, sweetpotatoes and pecans.

The net effect of these changes in production prospects is to push the index of 1951 all-crop production downward. Most of the reduction resulted from lower prospects for the late important crops, corn and cotton. The other changes more or less offset each other. This index is now 131 percent of the 1923-32 base, one point lower than on Oct. 1. It was exceeded only by the indexes of 132 percent in 1949 and the record 138 percent in 1948.

Yields per acre for most crops are above average, but many are lower than in 1950. New record yields are expected for all hay and sugar beets. Yields of oats, rye and tobacco are higher than either last year or average. On the other hand, yields of cotton, wheat, flaxseed, buckwheat, sweetpotatoes, broomcorn, sugarcane sirup and sorgo sirup are lower than either. The composite yield index, based on current estimates for 28 major crops, is 141 percent of the 1923-32 base, nearly as high as in 1949 and 1950, but exceeded sharply by the 151 percent in 1948. The customary reports by crop correspondents on the "all-crop" yield as of Nov. 1 indicate better than average yields in most of the country. The areas of poorer yields are found in the Missouri-Kansas-Nebraska flood area, the large dry area in the Southwest and in spotted sections elsewhere, mostly in the dry upper South. By regions, these reported all-crop yields range from above average in the north and south Atlantic and east north central states to below average in the west north central and western states, with the south central region well below average.

• **Pastures and Roughage**—Supplies of hay and roughage on farms, according to reports by growers on the total supply as of Nov. 1, are adequate in most areas. In these reports farmers consider, in addition to hay, silage and forage for which estimates are prepared, the feed provided by grazing of pastures, fields and meadows, such crop residues as straw from threshed grain, bean and seed crops, beet tops and pulp, roots grown for feed and the like. These supplies are relatively low in the South and Southwest, where dry weather has limited the feed available for grazing. Poorest supplies are reported in Texas and New Mexico, with shortages possible in portions of the South. Supplies are especially large in north Atlantic and north central states.

Pasture condition on Nov. 1, at 79 percent, was better than average, but not as good as the relatively high 82 percent a year ago. Grazing was poor in most of the south Atlantic and south central states and very poor in Texas and New Mexico. Pasture feed was unusually good on Nov. 1 in most northeastern and north central states, particularly in the west north central portion. Range pastures showed little improvement in October. Rain and snow improved water supplies and grazing conditions in dry areas, but came too late to make feed, except in the Pacific Northwest. Range livestock are in good condition except in dry areas, and there heavy supplemental feeding has been necessary. Forced movement of cattle and sheep from the dry Southwest has been relatively heavy.

• **Soybeans**—Harvesting of the nation's second largest soybean crop is nearing completion, with production currently estimated at 278 million bushels. This is only about three percent less than the record 287 million bushels produced last year and is 55 percent above the 10-year average production of 179 million bushels. Yields per acre harvested are turning out better than expected in most of the northern states, while in some of the southern producing states prolonged drought cut yields more than earlier anticipated. The U.S. yield of 21.2 bushels per acre is relatively high, being exceeded only by 1948, 1950 and the record yield of 22.7 bushels in 1949. The 10-year average is 19 bushels per acre.

Yields are higher than reported a month ago in all the major producing states of the north central area. Weather during October was generally favorable for maturing late planted beans and for harvesting the bulk of the crop. Yields in Ohio are turning out better than anticipated a month ago but are relatively low due to drought conditions in that state. Harvesting is nearly completed in Indiana and Illinois, with excellent yields being harvested in both

They Discuss How Processing Affects Cottonseed Meal

REVIEWING the round-table discussions to which the second day of the conference on cottonseed processing at the Southern Regional Research Laboratory was devoted are, left to right, upper photograph, A. M. Altschul, head, Protein and Carbohydrate Division, Southern Laboratory; A. L. Ward, director, Educational Service, National Cottonseed Products Association; Dr. C. H. Fisher, director, Southern Laboratory; and H. W. Marston, research coordinator, Agricultural Research Administration, USDA. E. A. Gastrock (left, lower photograph) was chairman of the session on processing and related research. He is head of the Laboratory's Engineering and Development Division. Shown with him are J. R. Mays, Jr., chairman of the National Cottonseed Products Association's Technical Committee, and A. C. Wamble, Texas Engineering Experiment Station, College Station. (See report on this conference on page 18.—ED.)

states. In Iowa, soybeans were generally late and only about one-half the crop was harvested by Nov. 1. This is much less than the usual percentage harvested as of that date. Some Iowa beans were caught by the Sept. 28 frost but damage was much less than reported earlier.

In the south Atlantic area, indicated production of syobeans is a little less than expected a month ago due to a reduction in Virginia. In that state prolonged drought sharply reduced earlier prospects. Other states of the area indicated little change from the Oct. 1 forecast. The south central area also shows a decline in production from last month due to reduced yields in Tennessee and Mississippi. Here again dry weather curtailed earlier good prospects. Arkansas, the heaviest producer in the south central area, shows no change from the high yield of 21 bushels per acre reported a month ago.

• **Peanuts**—The 1951 peanut crop from the acreage for picking and threshing is estimated at 1,638 million pounds, a decline of about three percent from Oct. 1 prospects. This production is 19 percent less than the crop harvested in 1950 and also 19 percent below the 10-year average. Improved prospects during the past month in North Carolina, Tennessee and Arkansas failed to offset declines in Georgia, Florida, Louisiana, Oklahoma and Texas. In the remaining peanut producing states — Virginia, South Carolina, Alabama, Mississippi and New Mexico—prospective production remains the same as a month ago.

Cotton Picking Wages Are Up 13 Percent

Cotton growers are paying an average of 13 percent higher wages to get their cotton picked this year, USDA reports. The 1951 average is $3 per 100 pounds for picking as compared to $2.65 a year ago.

California continues to lead the nation with a high of $3.70, the report said. New Mexico was lowest with $2.50. Rates advanced more in Florida this year than in any other state—85 cents a hundred. All other cotton states except New Mexico and Arizona showed higher picking rates.

USDA officials said the increase was about the same as that for all types of wage rates in the South since last fall.

In the Virginia-Carolina area, damp, cloudy weather with intermittent rain delayed curing, and picking was ust getting under way by Nov. 1—considerably later than usual. Favorable growing weather during October improved prospects for late peanuts, particularly in North Carolina where a somewhat higher yield than a month ago is now in prospect.

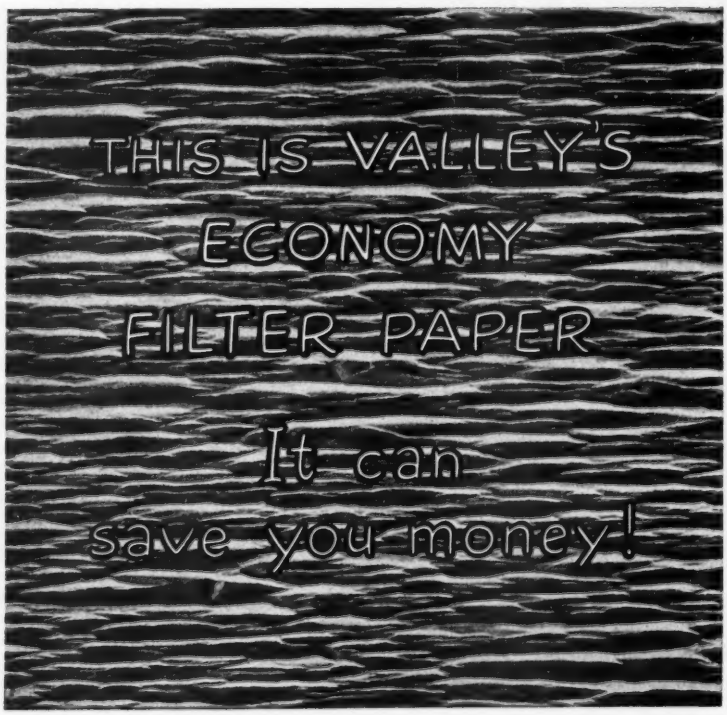
Indicated production in the southeastern area is below that of a month earlier, with the reduction occurring in Georgia and Florida where yields are turning out somewhat below earlier expectations. Prospects remained unchanged from a month ago in the other southeastern states. Digging was virtually completed in this area by Nov. 1 and threshing was making rapid progress under favorable conditions.

In the southwestern area, production prospects declined for the third consecutive month. With harvesting well under way in Texas, it is now apparent that the summer drought did more damage than had been expected. The prospective yield per acre of 300 pounds is 173 pounds below average. Although the indicated yield in Oklahoma of 465 pounds per acre is sharply lower than a month ago, it is only 29 pounds below average. Even though picking and threshing were wide spread, much of the acreage remained to be dug in this state on Nov. 1.

New Zealand Increases Flaxseed Plantings

New Zealand increased the price of flaxseed from $2.80 to $3.50 per bushel in order to expand acreage planted during the 1951-52 season. In order to avoid a serious shortage of oil in the dominion, the area sown reportedly should have increased to 40,000 acres. An estimated 30,000 acres, however, have been planted.

Harvesting difficulties caused by adverse weather reduced production during 1950-51 to around 300,000 bushels from 20,000 acres sown.



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Insects Won't Like This

■ A new technique for fighting insects is being employed out California way, and the pests don't like it much at all. The idea is to bring the insects face to face during the growing season with entomologists, or bug specialists. Cotton field surveys are made each week by the experts who then estimate in advance the time it will be best to apply insecticides, and in what quantity. This pin-point technique of fighting the insect menace is called "supervised control" by the University of California's College of Agriculture which developed the method. Thus far, approximately 85,000 acres of commercially grown cotton have been given the specialized treatment.

Flash! Girls' Moods Vary

■ Most girls agree that the color of their clothes affects their feelings, but there is some disagreement on just what sort of moods the female finery inspires. Bright colors such as reds and yellows encourage gay moods, say some young women. Others report that the colors only make them feel conspicuous. Still others prefer subdued black and dark colors because they then feel more refined and ladylike. Source of these observations is the textile and clothing division of New York State College which surveyed more than 1,000 coeds on the question of clothes color.

People Shrink with Age

■ Scientists have it that we shrink with age, decreasing in stature something like one-half an inch every 20 years, following approximately our 30th birthday.

Southern Diets Under Scrutiny

■ Nutrition experts at USDA are coming up soon with final results of a study looking toward improved diets for farm families of the South. Preliminary findings show that the most serious diet deficiencies appear to be in calcium, vitamin A, and ascorbic acid. Shortages of these nutrients can be made up, respectively, by drinking more milk, eating more leafy vegetables, and citrus. More than 40 percent of the farm families, according to the study, drink less than one cup of milk per day per person if they live in the cotton and tobacco areas. Elsewhere, in areas where there is more home-produced milk, consumption is higher. The research on Southern diet is being carried out jointly by five State Experiment Stations and the USDA.

Insects Multiply Like Crazy

■ Bugs have rabbits beat seven ways from Sunday when it comes to multiplication. Let us take the case of a happily married pair of rice weevils living under the most favorable conditions. The female lays about 300 eggs, resulting in a first brood of 300 weevils. This could be worse, but wait: the second brood would be 150 times that number, or 45,000 weevils. From then on things really get out of hand. By the time the fifth brood comes around, only some 120 days after the first, the total numbers approximately 152 billions. However, we are reminded of a comforting thought by the bug experts. Such extreme multiplication is unusual, if not impossible, due to unfavorable weather conditions and better methods of pest control.

If Wishes Were Houses . . .

■ If wishes were houses, the average Southern farm family would have a one-story home with plenty of storage space and a special guest room. The house also would have a window above the kitchen sink, windows low enough for children to look through, and a stormy-weather area for drying clothes. Southern housing preferences include separate dining space and an open fireplace. The study of housing desires was made by USDA in cooperation with State Experiment Stations. More than 1,500 Southern farm families were questioned in the survey.

Are We Nearer a Polio Cure?

■ Some scientists think we may be getting much nearer a cure for polio. What they are hopeful of finding is a single vaccine to provide complete protection against the disease. Prospects of turning up the right answer are said to be very much improved.

The "Hayseed" Is Vanishing

■ It's getting so you can't tell farm and city people apart by their clothes. Anyhow, that's how some of the girls in the USDA's Bureau of Human Nutrition and Home Economics have it figured out. After reviewing wardrobe surveys of recent years, the Bureau points out, it is apparent that farm and city persons today "wear much the same kinds of garments." However, there are these differences: farm people have somewhat fewer clothes, and spend less for them.

Experts Predict More Synthetics

■ The men who study trends at USDA tell us that synthetic fibers such as rayon, nylon, orlon, and others are likely to be produced in greater quantities in the year ahead. Expansion of the synthetic industry is being planned by commercial firms. Another contributory factor will be the continuing tight world supply of wool.

Pass the Algae, Please

■ In food-pinched Britain, scientists are doing a lot of thinking these days about alternatives to the usual diet. One of the things they've been trying is conversion of algae, found in ponds, into something resembling food. An edible dish has been concocted, at least experimentally, by feeding chemicals to the algae.

Rabbit Raisers on Increase

■ The science of raising rabbits for food is becoming more popular. Thousands of 4-H youngsters are now growing domestic rabbit for sale, and much of it is being marketed both frozen and fresh. Rabbit recipes are now available from the Agriculture Department.

Deadline Extended On Maid Contest

Deadline for entries in the 1952 Maid of Cotton contest has been extended until midnight, Dec. 8, the National Cotton Council has announced. All entries must be postmarked before midnight of that date to be eligible.

The eight-day extension from the original Dec. 1 deadline was granted in answer to the requests of many girls who needed additional time to obtain photographs required for the contest.

Any girl born in a cotton-producing state, who is between the ages of 19-25, has never been married, and is at least 5 feet 5 inches tall can enter the Maid of Cotton contest. Entries need not be sponsored by any group or organization. Applications are available from the National Cotton Council, Box 18, Memphis, Tenn.

When entry forms are completed, they must be returned to contest headquarters along with a head and shoulders photograph and a full-length picture. From the applications and photographs, a group of approximately 20 finalists will be chosen on Dec. 11.

Finalists will be notified by telegrams immediately after their selection. They will come to Memphis for contest finals Jan. 2-3, at which time the 1952 Maid of Cotton will be selected. Contestants will be judged on the basis of personality, intelligence, and background, as well as appearance.

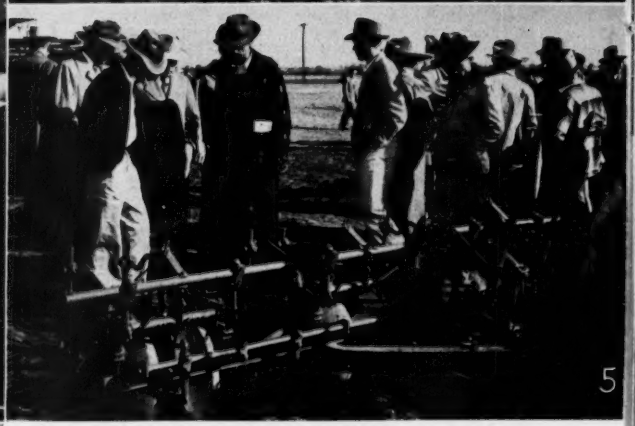
1950-51 Pakistani Cotton Exports Show Increase

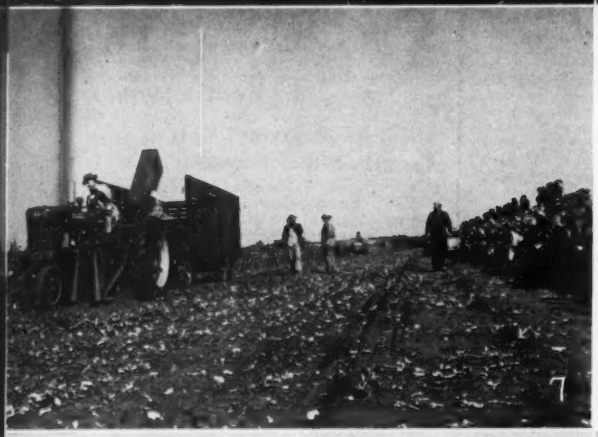
Exports of Pakistani cotton during 1950-51 exceeded those of the preceding season by about 20 percent, primarily due to the relatively short world supply of cotton and consequent export restrictions in certain other countries, USDA reports.

Almost 1,038,000 bales (500 pounds gross) were shipped from Pakistan during 1950-51, compared to 891,000 bales in 1949-50.

The 1951-52 production of cotton in Pakistan is currently estimated at more than 1,275,000 bales, although it is still to early in the picking season (beginning in September) for an accurate forecast. This would be about a four percent increase above the most recent estimate of the 1950-51 crop of 1,227,000 bales, and considerably above the one million bales produced in 1949-50.

Consumption of cotton in Pakistani mills and by the home-spinning industry in 1950-51 amounted to almost 145,000 bales, a sizable percentage increase above consumption in the previous season, which amounted to about 120,000 bales. Exports were increased from 891,000 bales in 1949-50 to 1,038,000 in 1950-51 and stocks rose to 170,000 bales from 133,000 a year ago.





Mechanization Conferen

Over 3,000 Growers See Modern Production and Harv

■ 1—It was a big day for Dr. Louis E. Hawkins, vice-director of the Oklahoma Agricultural Experiment Station, which operates the Chickasha station.

■ 2—The Station's experimental cotton gin makes a perfect background for this view of interested growers crowded around mechanical pickers and a wide variety of cotton production equipment.

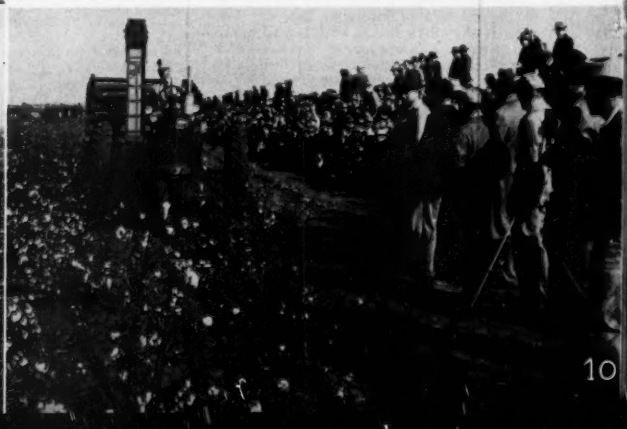
■ 3—A closer view of the equipment on display just south of the gin.

■ 4—E. W. Schroeder, head of the Oklahoma Agricultural Experiment Station's engineering department, was in charge of the highly successful field demonstration.

■ 5—Growers from a wide area around Chickasha came to see the equipment and ask questions.

■ 6—Several makes of strippers and stalk shredders ready to go into action.

■ 7—One of the strippers performing before filled bleachers set up for



ıce Field Demonstration

ɜsting Equipment at Chickasha Cotton Research Station

the occasion. Stalk shredders have already done their work in picked-over area.

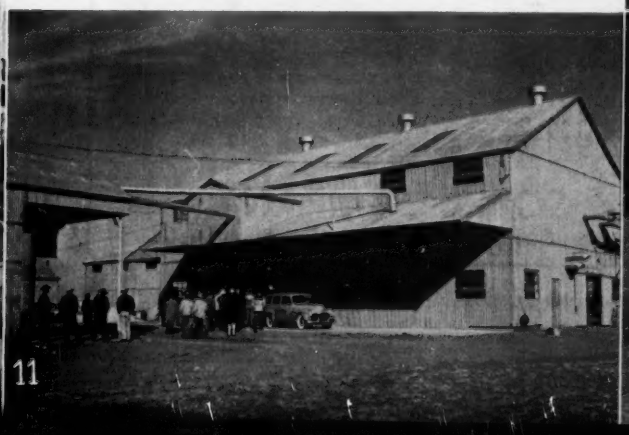
■ 8—This shredder is doing a good job. Several makes were seen in action.

■ 9—Another shredder being demonstrated. Shown is only a part of the big crowd that saw the shredders and strippers perform.

■ 10—The crowd actually overflowed onto the field, so great was the attendance. Many followed in behind the machines to get a closer look at the work they did.

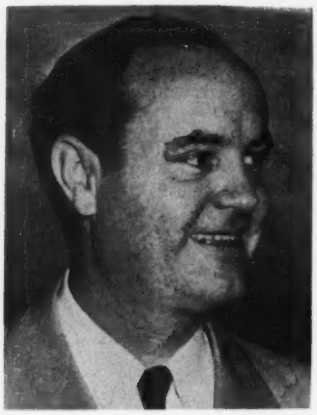
■ 11—After the strippers did their work, the cotton was put through the experimental gin, where growers and others in attendance observed the results of modern ginning methods designed to handle rough-harvested cotton.

■ 12—Chickasha's main street was lined with strippers, cultivators, spray rigs and other modern equipment. Bales of cotton bore signs welcoming the conferees to the conference. CG&OMPress Photos.



Lipscomb Heads Public Relations Society

The Public Relations Society of America announced at its annual banquet in Chicago Nov. 20 the election of Ed Lipscomb of the National Cotton Council, Memphis, as president of the society for 1952.



ED LIPSCOMB

The board of directors of the society, a professional organization composed of 1200 public relations executives from the 48 states and Canada, elevated Mr. Lipscomb from the vice-presidency to succeed the outgoing leader, Milton Fairman of The Borden Co., New York, N. Y., oil mill operator. At the same time, the board named William G. Werner of The Proctor and Gamble Co., Cincinnati, Ohio, as the new national vice-president.

The Public Relations Society seeks to formulate and interpret to business, professional and other groups, as well as the public, the objectives, potentialities, and functions of public relations. It also sponsors research study, makes fellowship grants, and in other ways endeavors to uphold and raise high standards of public service and conduct.

Mr. Lipscomb, who is public relations director of the Cotton Council, is the first southerner to be selected as society president. Besides writing numerous newspaper and magazine articles, principally on agricultural subjects, Mr. Lipscomb is author of the book, "Grassroots Public Relations for Agriculture," which has been widely circulated among community, county, state, and national farm leaders. The volume has proved an effective blueprint in marshalling forces of agricultural opinion in the fight against socialistic trends in America, and in fostering greater understanding between agriculture and the public at large.

In 1950 Mr. Lipscomb was the recipient of an honor medal given by Freedom Foundations for his contribution to a better understanding of freedom in his address, "This Is World War III," delivered in Oklahoma City. The Foundation, upon the same occasion, similarly honored the Cotton Council for its part in bringing about a better understanding of the American way of life through its grassroots public relations program.

In 1949 the Council also gained national recognition by receiving the "Public Relations News Annual Award" for its public relations efforts in cementing the various groups of the cotton industry into a united force for the good of cotton.

Belzoni Oil Mill Loses Solvent Plant in Fire

The solvent extraction plant and warehouse of the Belzoni Oil Works, soybean processors near Belzoni, Miss., were destroyed by fire which broke out in the plant about 12:30 a.m. Nov. 12. Loss was estimated at $150,000 by Henry H. Gantz, plant manager.

The fire, which broke out while three workmen were repairing a choked-up hexane line, was thought to have been caused by a faulty electric wire which sparked and ignited the chemical mixture used in the extraction process. The three workmen were slightly burned about the ankles.

Two hexane tanks, containing about 2000 gallons each, exploded and spread flames to the warehouse, where several tons of soybean meal were stored. There was no loss of soybeans or soybean oil.

The mill, which was the first solvent plant in Mississippi, was entering its third year of operation. It had a daily capacity of 60 tons.

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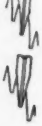

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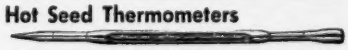

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Meeting to Review 1951 Insect Control

Effectiveness of different kinds of insecticides in checking the ravage by the boll weevil and other insect plunderers of the 1951 cotton crop will be reviewed at the fifth annual Cotton Insect Control Conference at the Peabody Hotel in Memphis, Dec. 4-5.

Claude L. Welch, chairman of the production and marketing division of the National Cotton Council, said that discussion of insecticides and methods of applying them will be included in the opening day's program. The Cotton Council is sponsoring the meeting.

Entomologists from each of the states represented at the meeting are expected to issue recommendations for their particular states, detailing which insecticides should be used, rates and frequency of application, and other instructions to aid cotton farmers in ther insect contol programs.

Of particular interest to manufacturers of insecticides, entomologists, and the cotton industry will be a review of research in 1951. Research highlights are scheduled to be presented in a panel discussion which lists representatives of the Bureau of Entomology and Plant Quarantine, USDA, and state experiment stations.

More than 700 persons, including state and federal entomologists, manufacturers of agricultural chemicals and insecticide application equipment, and agricultural educational leaders, are expected to attend the conference.

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Makes clean plowing easy
...pulverizes stalks, weeds, vines, briars, etc.
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Australian Oilseed Acreage Expands

The postwar increase in total acreage of vegetable oilseeds in Australia continues this year, with a prospective aggregate harvested acreage about 50 percent larger than the record acreage harvested last year.

The two major oilseeds, flaxseed and peanuts, will each be harvested from an acreage about 70 percent larger than last year, and cotton acreage promises to be about a third higher. The acreage intended for sunflowers is about 45 percent smaller, tung nut acreage continues to dwindle, and the bearing acreage in olives and the acreage planted to soybeans each seems unchanged.

Information on yield prospects for flaxseed is available only for New South Wales and Queensland. In New South Wales acreage is forecast at about 19,000 acres, prospects are excellent, and above-average yields are almost assured. In Queensland, where acreage may approximate 38,000 acres, prospects have been very poor but are improving in the Darling Downs where three-fourths of the state's flaxseed is grown.

After declining for several years, the acreage devoted to peanuts may be over two-thirds larger this year than last. Queensland, the largest producing state, expects 28,000 acres of peanuts in 1951-52.

Weather conditions in Queensland, the only cotton producing state, will determine whether the proposed acreage can be planted. The prospective increase from 6,000 acres in 1950-51 to 8,000 acres in 1951-52 is due to attractive prices for lint cotton and the recent increase in the number of mechanical harvesters.

The acreage of sunflowers grown in Australia is definitely on the down grade, as the crop is not as profitable as wheat or flaxseed. The downtrend started in Queensland, the principal producing state, in the 1950-51 season and present prospects are that last year's acreage will be cut in half this year.

13 Valley Future Farmers Win Cotton Contest Trips

Thirteen Rio Grande Valley Future Farmers were awarded $75 each to attend the national FFA convention in Kansas City for their production in the Valley-wide Cotton Contest sponsored by the Valley Farm Bureau through its cotton improvement program this year.

Three top cash awards were also presented to A. C. Fuller, Weslaco, who produced 1,791 pounds of lint cotton per acre, an average of three and one-half bales, to take first place prize of $150; state FFA Vice-President Jackie Schwarz, Mercedes, first-place winner in the contest last year, who received $100 for second place production this year; and W. R. Jones, Edcouch-Elsa, who placed third with 18 bales from seven and one-half acres, a lint yield of 1,260 pounds per acre, and received $50.

A total of 107 Future Farmers took part in the five-year-old contest, which emphasizes grade and staple as well as yield per acre. Valley gins and producers, as well as service clubs and other organizations, contributed to the prize money.

USDA Seeks to

Assure Castor Bean Production in 1952

A program for the domestic production of 1952-crop castor beans on approximately 200,000 acres, so as to assure increased supplies of this commodity in the national defense program, has been authorized by Secretary of Agriculture Charles F. Brannan, at the request of the Munitions Board.

Castor oil is a strategic oil for which there is a continuing demand for military purposes. The program announced for 1952 is similar to the program in operation for 1951-crop castor beans and is made possible by a commitment of funds under the Defense Production Act of 1950, as amended.

The 1952 program will be carried out by the Commodity Credit Corporation and will be made available to farmers who enter into contracts with CCC, or with private companies, farmer cooperative associations, or others under contract with CCC, in areas within the states designated by CCC and for which adapted planting seed is available. These states will include Arizona, Arkansas, California, Oklahoma and Texas. The price to be paid farmers who contract for the production of castor beans in 1952 will be the higher of 10 cents per pound, hulled basis, or the market price at time of delivery. This is the same price as for the 1951 crop.

CCC will enter into contracts with manufacturers or others for the purchase of farm machinery and other equipment that may be needed in connection with the production, receiving, hulling and storing of castor beans and may contract for the purchase of quantities of planting seed for sale to farmers in areas within designated states where the seed is adapted. Production will be encouraged in concentrated areas to facilitate harvesting, receiving and hulling.

The program contemplates the planting of about 200,000 acres, of which about 56,000 acres will be irrigated and the remainder dry land. It is estimated that this acreage will produce 113,000,000 to 155,000,000 pounds of castor beans in 1952, from which about 50,000,000 to 70,000,000 pounds of castor oil would be obtained. This acreage would also provide an adequate supply of seed for planting in 1953.

The program will be financed by CCC, but losses, if any, will be reimbursed from funds provided under the Defense Production Act of 1950, as amended.

Under a castor bean production and procurement program announced by USDA last February, approximately 84,000 acres were planted by farmers under contract with the Commodity Credit Corporation and a private company which was under contract with CCC. Of this total, about 55,000 acres were planted on dry land in Oklahoma, Texas, and Arkansas; and 29,000 on irrigated land in Oklahoma, Texas, Arizona, and California. It is estimated that this acreage will produce approximately 60,000,000 pounds of castor beans for use in the production of oil in the national defense program, and to increase the supply of planting seed for the 1952 crop.

The 1951 crop represents an increase of more than 900 percent above the 1950 outturn, when only 9,000 acres were grown by farmers under contract with a private company for the production of castor beans. To facilitate the harvesting, hulling, and handling of the 1951 crop, a number of stripper harvesting machines, combines, and hulling and storing centers were made available to farmers who contracted for the production of castor beans.

Peru's Vegetable Lard and Oil Output Increases

Production of vegetable lard and oil in Peru during 1950-51 is estimated at around 19,800 short tons, compared with 16,500 tons in the previous season.

Cottonseed is the primary source of vegetable oil in Peru. Although estimates are late for the present year, output of cottonseed is expected to be little more than in 1950, when about 200,000 tons were produced.

Small quantities of sunflower seed and peanuts are crushed for oil in Peru, although production has not reached commercial importance. It is not expected that the acreage of these crops will be increased materially in future years. Plantings of African oil palms are being increased in Peru and the prospect for increased vegetable oil production may be dependent upon the culture of this crop.

There are 24 oil-crushing plants in Peru, and three grades of edible oils are produced in addition to vegetable lard.

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Brazil's Oilseed Crops Are Below Expectations in 1951

Production of vegetable oilseeds in Brazil in 1951 now appears to be even less than the small crop of 1950. Significant increases from last year are reported only for the peanut and soybean crops. Good crops were reported generally for south Brazil but these were more than offset by sharp declines in north Brazil.

The cottonseed and castor bean crops in north Brazil were the greatest disappointment. Although prices of both seed cotton and castor beans were at record heights at planting time, the drought and shortage of labor evidently prevented any increase in acreage. Drought and insect damage to cotton also reduced the yield and both the cottonseed and castor bean crops in north Brazil are now expected to be no more than 50 percent of normal.

Weather in south Brazil was favorable and, with the exception of flaxseed, yields of other oilseeds were equal to or larger than in 1950. The cottonseed and peanut crops in Sao Paulo were about 20 percent above last year, and soybean production in Rio Grande do Sul was up nearly 45 percent from the previous season.

The increase in edible oil in central Brazil should help relieve the vegetable oil shortage that has existed in that area for the past few years.

Discontinuance of barter trade in castor and babassu oils apparently has had little effect in these industries so far. The percentage of the castor bean crop that was crushed this past season in Brazil was the highest on record. Apparently all the crop had been disposed of by the end of the season and stocks were at a minimum.

A record proportion of the babassu harvest was also processed in Brazil in 1950-51 and, consequently, the volume of kernels exported for processing in other countries was smaller. The crop apparently was all disposed of despite claims that Brazil's interior prices for babassu kernels were far above world price levels.

The earlier estimate of cottonseed production from the cotton crop harvested in 1951 has been revised downward to 640,000 short tons. This revision was mainly the result of a sharp reduction in the estimates of the cotton crop in north Brazil. The 1950 cottonseed output has been revised upward to about 700,000 tons.

The peanut estimate of the 1950-51 crop has not been changed from 160,000 tons, unshelled basis. The soybean crop harvested this past May and June has been revised downward to 1,840,000 bushels but still represents an increase of 43 percent from the 1950 output of 1,290,000 bushels. Good demand and favorable prices are expected to effect an increase in the 1951-52 soybean acreage.

Over two-thirds of Brazil's castor bean crop is grown in northern Brazil. Drought during the first part of 1951 seriously affected the crop in this area and production of castor beans is now placed at about 135,000 tons, against 154,300 tons in 1950.

Estimates of the 1950-51 oiticica crop place output at 27,500 tons, a sharp drop from previous estimates and a decrease of about one-third from the 1950 outturn. Production of oiticica oil from the 1951 harvest is estimated at about 8,800 tons.

The 1951 flaxseed crop is now estimated at around 590,000 bushels, or less than 50 percent of the crop in each of the previous two seasons. The acreage planted this year was estimated to be only 10 percent less than last season, but the drought in July and August greatly reduced yields.

4-H Boy Is Named Alabama Cotton Production Champ

A Coosa County 4-H Club boy, Gerald Ward, has won the title of Alabama 4-H cotton production champion for 1951.

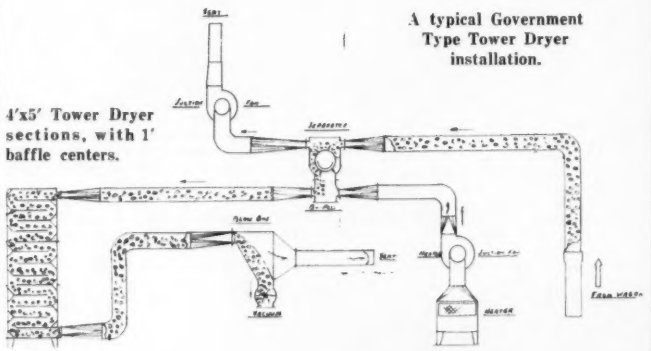
He has carried cotton as a project for four years. Since Gerald is a member of a family of 11 he was limited to only one acre for his project. But he came out a champion.

The 4-H Club boy says he applied Alabama Experiment Station recommendations, obtained through the county agent's office, for growing cotton.

Gerald produced two bales of cotton on one acre in 1949 and again in 1950. His cotton demonstrations have been used on county tours to show other 4-H boys and farmers how to make higher yields of cotton.

Another honor coming Gerald's way is the fact that his lead in cotton production made it possible for the Coosa County 4-H Council to win a national cotton production award for two years in succession.

Gerald is the son of Mr. and Mrs. J. B. Ward, who live near Titus.



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Oilseed Yields Are Up in Italy, Seed Imports High

All 1951 Italian oilseed crops except sesame showed a decided improvement in per acre yields over 1950, according to reports to USDA. The yield of soybeans in 1951 is expected to be 42 percent greater than in 1950, with sunflower seed 36 percent greater.

Yields in colza and rape, for which final estimates are available, indicate 11 and almost nine percent increases, respectively, over 1950. Sesame, almost exclusively a southern Italian crop, was planted in the autumn of 1950 when heavy rainfall interfered with normal development.

The 1951 acreages were lower than 1950 for rape, sesame, soybeans and castor beans, as much as 25 and 28 percent lower for soybeans and castor beans, respectively.

Net imports of oilseeds during the first half of 1951 were 40 percent over the same period last year. An outstanding development in 1951 imports was the shift from the U.S. to China as the leading source of supply. During the first half of 1950 Italy imported from the U.S. 27,900 tons of oilseeds, or 37 percent of total quantity of oilseed imports. By comparison, Italian imports from the U.S. during the first half of 1951 totaled 10,500 tons, or about 10 percent of total oilseed imports. On the other hand, imports from China and Hong Kong rose from only 1,150 tons duing the first half of 1950 to more than 46,000 tons during the first half of 1951. Chinese sources thus accounted for about 44 percent of the January-June 1951 imports. The bulk of the oilseed imports from China and Hong Kong consisted of soybeans, but also included peanuts, rapeseed, sesame, and castor beans.

Among the edible oilseed imports during 1951, there was a decline from 1950 in imports of peanuts and sunflower seed, and a rise in imports of soybeans and rapeseed. Among imports of inedible oilseeds in 1951 as compared with 1950, Italy reduced its imports of flaxseed and palm seeds, and increased its imports of castor beans and copra.

French Moroccan 1951 Oilseed Situation

Preliminary estimates of 1951-crop oilseeds in French Morocco indicate a substantial increase in production of flaxseed, Morocco's largest oilseed crop, and a decrease in sunflower and safflower seed output.

Flaxseed was sown on 188,800 acres this year and output was expected to approximate 1,236,000 bushels. During the previous year 630,000 bushels were harvested from 145,800 acres. The large 1951 crop, almost double that of 1950, was due to a combination of favorable weather and a 30 percent increase in sown area. It is still only half of the peak 1949 harvest, however, when generous price guarantees boosted sown area to an all-time high of 318,000 acres. The entire crop, except for 150,000 bushels to be retained for seeding, may be considered to be an exportable surplus, since flaxseed is grown primarily for export.

Sunflower and safflower seed, the only important oilseeds produced for edible oil, have decreased during the 1951 crop year. Sunflower seed output was officially reported at 7,165 short tons against 10,800 tons in 1950. Production of safflower seed amounted to 2,450 tons compared with 4,850 tons in the preceding season. However, there is the belief that the 1950 crops were not as high as reported (15,650 tons) and that production was only about 11,000 tons. Output in 1951 thus probably would nearly equal that of 1950, in spite of the dry weather prevailing during the spring sowings and a reported increase in the attacks of various parasites. Crushing of these oilseeds will produce less than 2,200 tons of edible vegetable oil.

An interesting development of the 1951 season is the fact that castor beans are now attaining commercial importance. According to preliminary estimates, the area sown to this crop in 1951 totaled 3,460 acres and it is likely that production may approach 1,000 tons. Production is being encouraged by a French plastic firm which claims to have 15,000 to 17,000 acres of land in the coastal area now available for cultivation, equipped with the necessary machinery for harvesting the beans. The firm expects to have 25,000 acres under cultivation within the next few years, with further expansion envisaged. Present plans call for shipping the beans to France for use in the manufacture of plastics.

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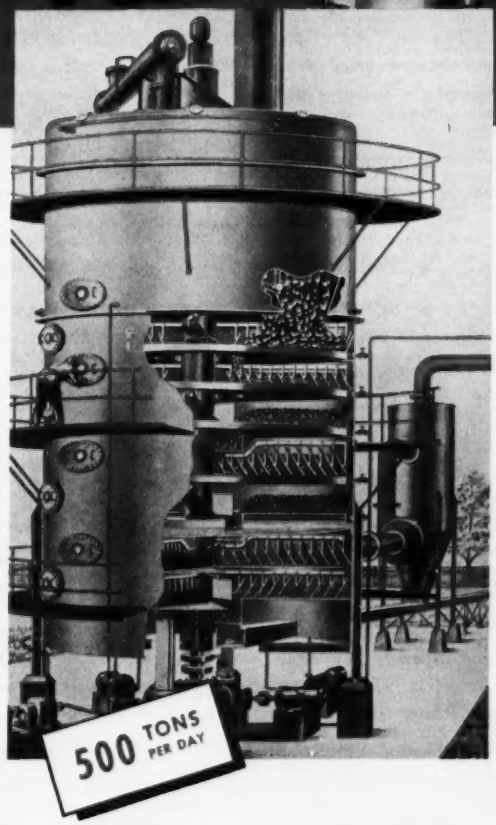

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Ecuador's Oilseed and Oil Output Drops in 1951

Vegetable oil production in Ecuador in 1951 has been forecast at around 2,600 short tons, a decrease of almost 28 percent from the previous year. The drop in vegetable oil output from last year is the result of the lateness of some oil-seed crops and of already established decreases in others.

Planting of castor beans in 1951 was stimulated by high export prices, and an increase of about 50 percent from the 1950 output of 7,100 tons was forecast. With the exception of cottonseed, which is expected to approximate the 1950 output of 7,730 tons, and castor beans, all other oilseed crops are expected to decrease from 25 to 75 percent.

Principal vegetable oils produced in Ecuador and production forecasts for 1951 (1950 output in parenthesis) are as follows: palm, 1,350 tons (1,800); cottonseed, 560 (790); barbados nut, 280 (310); castor, 190 (270); peanut, 140 (230); coconut, 80 (110); kapok, 30 (60); and sesame, 15 (15).

Imports into the Port of Guayaquil of oils, fats, and waxes and their products, January through May 1951, totaled 995 tons against 2,560 tons during all of 1950.

Exports of castor beans in the first five months of 1951 amounted to 914 tons compared with shipments of 4,600 tons during the previous 12 months. No other exports of oilseeds or oils were reported during this period.

Foreign Cotton Outturn Estimates Drop

A number of revisions in cotton production in foreign countries received by USDA in the last month include downward revisions of about 125,000 bales (of 500 pounds) in Egypt, due to heavy bollworm and leafworm damage and shortage of irrigation water in lower Egypt; at least 100,000 bales in the Anglo-Egyptian Sudan for the same reasons; 150,000 to 200,000 in India, due mainly to failure of the monsoon in northern and west central cotton areas; about 40,000 in Pakistan due to lack of rain in southern zones; at least 170,000 in China due to drought early in the season, floods in July and heavier than usual insect damage; 50,000 to 100,000 in Syria due to heavy insect damage and shortage of water; and 75,000 in Mexico due to drought. No upward revisions have been reported.

Tests Show Defoliation of Castor Beans Is Practical

Preliminary trials at Stillwater and Altus, Okla., indicate that castor beans can be satisfactorily defoliated with a defoliant applied by airplane, the Oklahoma Agricultural Experiment Station, Stillwater, has reported.

Cost of treatment is about $3.50 an acre, including application; therefore the method is practical only when shattering is causing heavy loss of seed prior to frost. Defoliation should not be attempted before seed capsules have matured; it may cause loss of mature green capsules. The station reported considerable variation in results with different materials.

Belgium's Oilseed Output Is Higher in 1951

Production of vegetable oilseeds in Belgium during 1951 amounted to an estimated 696,000 bushels of flaxseed from 84,000 acres and 5,200 short tons of rapeseed from 5,700 acres. There was a substantial increase in acreage planted to oilseeds this year, and production is expected to exceed that of 1950 by nearly 45 percent.

Final 1950 acreage and production of flaxseed has been placed at 60,386 acres and 500,300 bushels. Rapeseed output during 1950 totaled 3,100 tons from 3,986 acres.

Production of crude linseed oil in the first eight months of 1951 was reported by the Belgian Federation of Oil Manufacturers at 21,833 tons. Output during the 12 months of the previous year amounted to 32,140 tons. Imports of flaxseed, principally from Canada and Argentina, aggregated 2,104,700 bushels in January-August 1951. Exports totaled 215,900 bushels during this period. Imports of crude linseed oil of 6,043 tons compare with exports of 11,270 tons.

$100,000 Fire Destroys Grand Prairie Gin

A $100,000 fire destroyed the sheet iron and wood building occupied by the Grand Prairie Gin Company, Grand Prairie, Texas, Nov. 17.

Several tons of cottonseed and a few bales of ginned and unginned cotton were lost in the blaze. A neighbor reported hearing an explosion, then seeing flames. No one was in the building.

Decatur, Ala., Mill Sold

Announcement has been made of the sale of the Home Oil Mill, Inc., of Decatur, Ala., to the Farrell interests of Brinkley, Ark. The name of the mill has been changed to Decatur Cotton Oil Company. Paul Farrell is president of the mill and H. B. White is the new manager, succeeding C. M. Scales.

Home Oil Mill was founded in 1912 by the late Wm. R. Spight and was managed until July 1938 by Fred S. Hunt. Mr. Scales had managed the mill since that date.

Paraguay's Vegetable Oil Output Revised Downward

Vegetable oil production in Paraguay in 1951 is now placed at about 6,800 short tons, a considerable decrease from earlier estimates, and four percent less than the revised 1950 output of 7,100 tons. Although output of cottonseed oil (2,000 tons) and peanut oil (500) approximated previous 1951 estimates, production of industrial oils fell far short of expectations. Unfavorable weather was the principal reason for the low outturns.

Area planted to cotton during the 1951-52 season is expected to approach 200,000 acres, an increase of one-fifth from the previous season.

A small increase in the production of peanuts is expected during the coming season, and peanut oil output may amount to 600 tons.

The final estimate of Paraguay's 1951 production of tung nuts is 4,100 tons, from which about 1,200 tons of oil were produced. Production in 1952 is expected to reach 12,000 tons of tung nuts and about 3,800 tons of oil.

Castor bean production is now estimated at 2,200 tons and the oil yield at 830 tons. High prices are expected to boost the 1951-52 crop to around 4,400 tons, from which an oil yield of about 2,000 tons could be expected.

The production of palm kernel oil and palm oil in 1951 amounted to about 1,400 and 900 tons, respectively.

Widow of Interstate's First President Dies

The widow of one of the founders and the first president of the old Interstate Cotton Seed Crushers' Association died Nov. 16 at Vicksburg, Miss., at the age of 98. She was Mrs. Emily A. G. Durham, a native of Minden, La., and the wife of the late E. M. Durham of Vicksburg, who served as president of the predecessor of the National Cottonseed Products Association during the fiscal year 1897-98.

Mr. Durham founded the Refuge Cotton Oil Company and operated it until it was taken over by the old Southern Cotton Oil Company which went into receivership in 1923. Southern was purchased and reorganized by Wesson Oil and Snowdrift Company in 1925 and has since been operated by that company.

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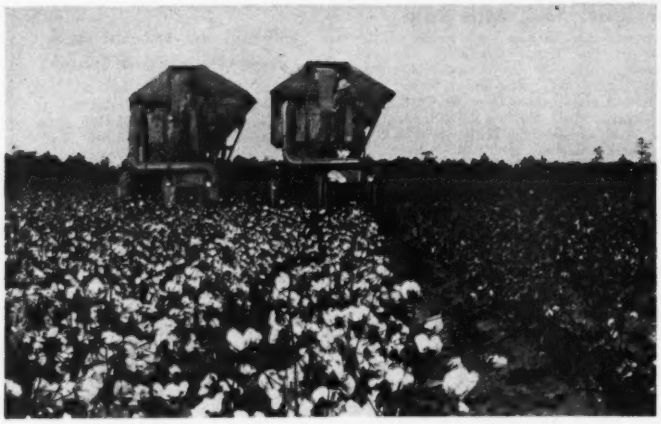


More and more mechanical pickers are being used each year.

Mechanization Conference Report

Economic Aspects Of Cotton Mechanization In the South

By Dr. G. H. AULL

■ **Extracts from address before the Fifth Annual Cotton Mechanization Conference at Chickasha, Okla., Nov. 8-9, 1951.**

IN ORDER FOR Southern farmers to make more rapid progress along the road of mechanization something more will be required than machines physically adapted to their use. This "something more" constitutes an important part of the subject matter of this paper and may be fully explored under the title which has been assigned; namely, "Economic Aspects of Mechanization in the South." For our purposes, however, the term "economic" has been broadly interpreted to include some factors which under other circumstances might be described as "social." In like manner I have taken the liberty to include under "aspects" not only the forces which may in one way or another hinder mechanization but those which must inevitably flow from its extension.

For convenience "the South" as used in this paper refers to that group of states—sixteen in number—which go to make up what the Census describes as the South Atlantic, the East South Central and the West South Central Divisions. Its northern boundary extends irregularly from Delaware and Maryland through West Virginia and Kentucky to Oklahoma and Texas. This area does not, of course, include all of the states producing cotton. On the other hand, it does include several which are not by any stretch of the imagination "cotton" states.

Dr. G. H. AULL is Head of the Department of Agricultural Economics and Rural Sociology at Clemson Agricultural College, Clemson, S. C.

In 1930, the number of tractors on farms in the sixteen states which we have defined as "Southern" was only one-sixth the number reported in the rest of the country. By 1940 the ratio was one to five and ten years later (in 1950) it was less than one to three! The South as a whole laid claim in 1940 to only 271,000 tractors. This was only 58 percent of the number reported in the Corn Belt states of Ohio, Indiana, Illinois, Iowa and Missouri. By 1951, however, we could match them tractor for tractor with a margin to spare which was equal approximately to the total number we possessed in 1920.

There is no reason to believe that the other indices of mechanization would reveal any less favorable rate of growth than that indicated by the figures on changes in tractor numbers.

In the light of this very admirable record of progress it would be easy for us to overlook the fact that the *current* position of the South, from the standpoint of mechanization, leaves us with much to be desired and that many of the influences which were responsible for our previous low level are still present in greater or less degree. I do not have the figures for the most recent Census year but it has been estimated that in 1945 the average farm worker in the South had at his disposal less than one-half as much equipment as did the average agricultural worker in the United States. With all of our progress in the introduction of labor-saving equipment—and it has been outstanding—Southern agriculture today is "mechanized" to only about one-fourth to one-third the extent which characterizes agriculture in other parts of the country.

The simple fact is that no farmer, however good a manager he might be, can afford to substitute even the most efficient machine for the labor of his family if in so doing that labor is deprived of an opportunity to work. Farm labor in a very special sense must be "saved" for something more remunerative or it will not be saved at all. For many years, this "something more remunerative" has been lacking in the South, with the result that the incentive to introduce farm labor-saving equipment has been noticeably weak.

It is only fair to say that over a large part of the South, and particularly in the Eastern Cotton Belt, this reluctance to "displace" farm family labor was effective also in the retention of hundreds and thousands of Negro sharecroppers and wage laborers even after it became obvious that a shift to more efficient farming systems and practices was in order. It was not until the beginnings of the Second World War when farm workers in large numbers were attracted into "Jobs for Defense" that the South really began to mechanize.

I think that few people in the South, and even fewer outside, have had any conception of the magnitude of this problem, that is, the problem of people so numerous on the land that they actually under-bid machines in the competitive struggle for something to do. One study [1] for example, calls attention to the fact that in 1940 "nearly one-half of all agricultural workers in the United States lived on southern farms and were trying to make a living on one-third of

[1] Aull, G. H., "Employment Prospects in Southern Agriculture," Southern Economic Journal, Vol. XIII, No. 4, April 1947.

the nation's agricultural land with one-fourth of the nation's livestock. For standing room, the average farm worker in the north central states required 64 acres of crop land and 22 acres of pasture as compared with 24 acres of crop land and 11 acres of pasture for his brother under the southern sun. The land, moreover, was more productive where it was less crowded. If north central agriculture had provided farm jobs in the same proportion as southern agriculture, this alone would have been sufficient to have opened up nearly 4.5 million new employment opportunities in farming. This is a larger number than were classified as workers on southern farms in 1940.

"To have provided each of the South's 4,300,000 farm workers with an amount of crop land equal to that available to a farm worker in the Midwest would have required in 1940 a total of 275 million crop acres, or more than two and a half time that which was available. Or, to state it in another way, if the crop land which was available in the South in 1940 had been allotted to farm workers on the basis of 64 acres per worker (the average in the Midwest) there would have been room in southern agriculture for only 1,600,000 workers, or 2,700,000 *fewer* than the number actually reported."

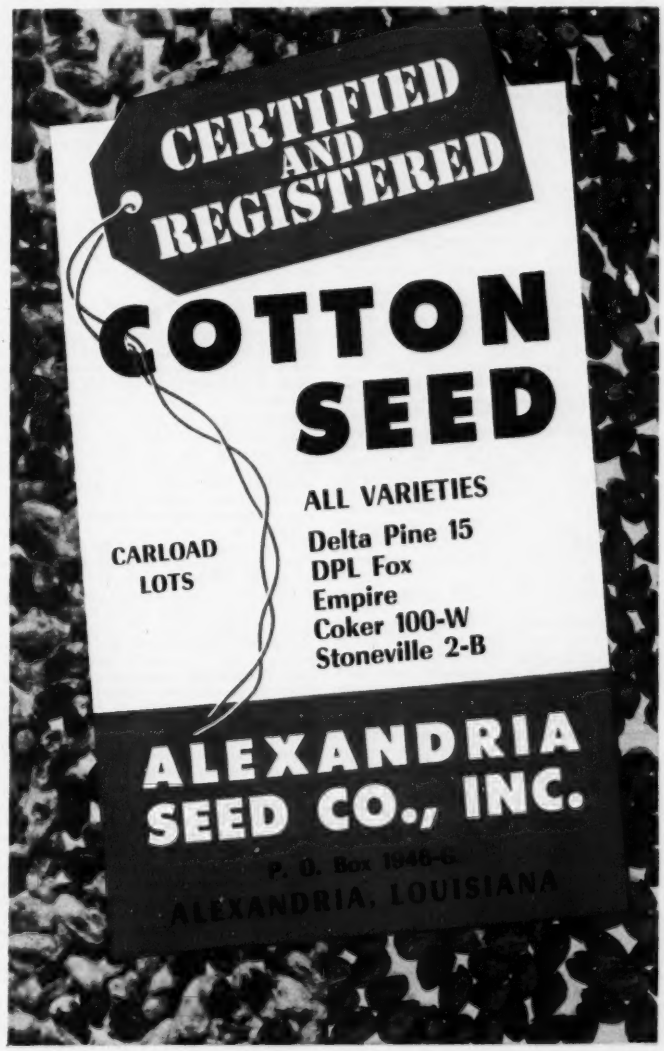
While this situation has materially improved since 1940, it must be apparent that mechanization is not facilitated under circumstances whereby two or three workers are available for a job which, by known standards, could be performed by one man with the aid of some equipment. It hardly seems necessary to mention that these two or three workers will not, under these circumstances, enjoy a level of living comparable to that which would be enjoyed by the one worker. On the other hand, not much would be gained regionally by permitting one worker to accomplish the task with a machine while his companions frantically assisted one another to do nothing. For many years in the history of the South this is exactly what *would* have happened.

Incidentally, this is one of the basic causes of low output and low income per worker in the South. So long as this situation prevails, we probably will not appreciate the necessity for mechanization and could not pay for it if we did. The seriousness of the problem is emphasized by a recent report prepared in the Bureau of Agricultural Economics in Washington which shows that production per farm worker in the Southern States is only about 60 percent of the national average.[2] Even this, however, looks pretty good when it is recalled that it was accomplished with only 53 percent as much cropland, 51 percent as much livestock and 44 percent as much equipment.[3] The closing of this gap—or, more precisely, of these gaps—holds many potentialities for Southern farm families and could usher in more changes than the South has seen since Sherman's march through Georgia.

One of the things prerequisite to any increase in equipment per worker in the South is a substantial increase in the size of Southern farms. Not only have we had too little land, livestock and equipment per worker on farms, but the quantities we have had have been divided up among too many operating units. While nearly all measures of farm size are "tricky" and subject to misrepresentation of the facts, there is universal acceptance of the thesis that expert planning and capable management are not generally satisfied to operate in restricted surroundings. It is almost inevitable that anything which encourages an increase in the resources over which a capable farm manager can preside will be accompanied by increased mechanization of the farming business.

There is no quick and easy solution to this problem. In large areas of the South farm lands have been so "cut up" that chances of ever getting them together into an economic farming unit are almost non-existent. Even if they could be bought, many of them are over-built and over-capitalized for farming purposes. This need not be an insurmountable obstacle but for a long time to come the alternative for many such areas is not mechanization but urbanization. Several studies have indicated that the traditional pattern of farm tenancy in the Cotton South may have exerted a discouraging influence upon the introduction of machinery into the region. Certainly the practice of having the tenant furnish all the labor in exchange for one-half of the cotton is not conducive to the landlord's acquiring a tractor.

Along with this is another and different problem growing out of the fact that there are certain important Southern cash crops (particularly cotton and tobacco) which even yet require a con-



[2] Johnson, Sherman E., **Changes in American Farming**, Misc. Pub. 107, U. S. Dept. of Agri., December 1949.

[3] Aull, G. H., "The Southern Farm Family in an Era of Change," Southern Economic Journal, Vol. XVII, No. 1, July 1950.

siderable amount of hand labor. In order to insure the supply of such labor when needed, many landlords have found it expedient to provide year-round housing and at least a minimum of employment during the slack season. The very presence of this labor on a farm is sufficient to discourage the introduction of labor saving equipment. Thus, the early perfection of widely adaptable cotton chopping and picking equipment and of a machine which will string, tie and cure tobacco would greatly accelerate mechanization in the South.

A study made recently in Louisiana suggests that "lack of necessary finances is the chief deterrent factor in the way of those farmers who have not mechanized but wish to do so."[4] While there is no reason to question the accuracy of this observation it may be pertinent to observe that this deterrent factor itself may have been the outgrowth of an oversupply of farm labor, an undersized farm or an outmoded rental arrangement. In any event, it is a safe bet that none of these non-mechanized farms was without a jalopy of ancient or modern design. I cannot believe that the farm implement dealers are so far behind the automobile salesmen as to be deterred in making a sale by lack of necessary finances on the part of the intended purchaser.

Throughout this discussion there has been the implied, if not the stated, assumption that mechanization, as we have defined it, would be a "good thing" for the South. The number of instances in which the introduction of machinery has imposed a burden upon the farm have been relatively few and I am confident that no dealer in his right mind would wish it otherwise. Undoubtedly there are many farms in the South which are ready for mechanization but which for one reason or another have not recognized the advantages to be had from it. This, as I see it, is a problem and an opportunity for the farm machinery industry. For every one of these, however, there are two or three other farms which, under the circumstances which have been described, are actually better off without mechanization. This does not mean that they are well-off but it does mean that their economic position would likely not be improved *merely* by the addition of an indefinite amount of capital in the form of machinery.

Physically we know that it is not too difficult to grow two blades of grass where only one—or even none—grew before, and with our own eyes we have seen machines which will do the work not of one man but of many men. Apparently, however, we are just now discovering that if we are to produce twice as much with a fraction of the labor there must somehow be found a market for the added production and a job for the released workers. For example, using recommended practices and with the aid of mechanization the output of cotton per man hour of labor may be increased from 300 to 500 percent over conventional and less effective methods. The market, however, is no more ready to absorb this increased output, even at greatly reduced prices, than society would be ready to absorb the manpower if output remained about the same. What then are the alternatives? Is there no hope?

[4] Bertrand, Alvin L., **Agricultural Mechanization and Social Change in Rural Louisiana**, Louisiana Bulletin 458, June 1951.

In the case of cotton, competition from synthetics and substitute fibers would seem to be such that the question is no longer academic. We simply must find ways and means of putting the fleecy home grown staple into the mills at a price which will compare favorably with that of competing fibers. If labor has no alternative except to grow cotton then labor will have to bear a large share of the burden which this will entail and the job will continue to be one of blistered hands and breaking backs. The pay, moreover, would be small and even this would give no assurance that cotton could continue to hold its own in the markets of the world. This means that so far as cotton production is concerned, it must become efficient if it expects to survive. One of the most important avenues to efficiency is through mechanization. Meanwhile, the mechanization of the South's major cash crop would give impetus to mechanization in other fields of agriculture. Large acreages of land, now hard pressed by hand methods to produce feed for workstock, would be released to improve pastures, cash grain, and other enterprises which lend themselves to the use of machines. Land which formerly had experienced only a mere scratching of its surface would literally vibrate with the deep stirring of its subsoil and respond with unprecedented yields. This would be conducive to a more favorable ratio of costs to returns which would facilitate the acquisition of all kinds of equipment whether designed primarily to save labor or simply to accomplish that which labor can not.

Many farm workers now only partially employed would find year round jobs in a diversified, mechanized agriculture such as is here visualized, but under any foreseeable circumstances, others among them would need to seek off farm employment.

Fortunately the time is ripe for this development. Farmers are more keenly conscious of its importance than ever before and the opportunities were never brighter. The South has made and is making remarkable strides industrially and while the "growing pains" may be a little hard on farmers in particular the net result should be in their favor. Some indication of the growing power of the South to provide industrial jobs for its people and markets for its products may be gained from the fact that between 1939 (the year after President Roosevelt characterized the area as "the nation's No. 1 economic problem") and 1947 (when the most recent Census of Manufacturing was made) the "value added by manufacture" in the three geographic regions which comprise the South increased by 233 percent as compared to an increase of less than 200 percent in the rest of the country. Twenty years ago (1929) the five great manufacturing states in the East North Central Division[5] added by manufacture a value which was 133 percent greater than that for the entire Southern region; ten years later (1939) the difference was 100 percent; and in 1947 it was only 82 percent.[6] "At this rate," according to one observer, "the South in another quarter century will have surpassed the combined manufacturing achievements of Ohio, Indiana, Illinois, Michigan and Wisconsin, which in 1947 accounted for more than 30 percent of the total value added by manufacture in the United States."[7]

There is no suggestion here that the South can maintain such a rate of industrial development but the fact that it *has done so* over the past few decades lends substance to the hope that it will. If so, one of the "bottlenecks" to mechanization in the South will have been smashed and Southern farmers will have found the avenue to a new and more prosperous way of life.

[5] Ohio, Indiana, Illinois, Michigan and Wisconsin.
[6] U. S. Dept. of Commerce **Census of Manufactures**, 1947.

[7] Aull, G. H., "Economic Prospects of the South," Journal of Farm Economics, Vol. XXXII, No. 4, November 1950.

San Joaquin Valley Gins Have Record Week

San Joaquin Valley cotton gins handled a record 175,032 bales the second week in November despite an acute labor shortage.

The work force in the fields stands at approximately 80,000, which is far less than the 115,000 workers at this same time in 1949. An additional 6,000 workers are still needed.

The harvest shows the effect of mechanical pickers, which accounted for nearly 103,185 bales, or 59.2 percent of the total ginnings. Bales ginned for the same week in 1949 totaled 117,000.

The record ginnings raised the seasonal total to 803,518 bales, or about 46.2 percent of the estimated yield. At this point in the 1949 harvest, the total was 510,339 bales, or 58.6 percent.

MM Will Distribute Own Products in Southeast

Minneapolis-Moline Company, Minneapolis, Minn., announces that it assumed distribution of its products in the southeastern states on Nov. 1. MM sales in that section formerly were handled by a distributor.

Minneapolis-Moline and B. F. Avery & Sons of Louisville, Ky., merged on March 1 of this year, at which time Philip H. Noland, Avery president, became a vice-president of MM. W. C. MacFarlane is president and general manager of Minneapolis-Moline. Avery personnel, products and dealer organization are being integrated with those of MM.

Flaxseed Men Predict 1952 Will Be Good Year

A good year for the flaxseed industry was predicted by experts at a meeting of the Flax Institute of the United States at Minneapolis, Minn., Nov. 8.

E. H. Russell, president of the Minnesota Linseed Oil Co., Minneapolis, and secretary of the institute, pointed out in the keynote address of the meeting that a revolution has improved flax production in the last decade. Improved flax varieties and better production methods are responsible for the changes, he said.

Other experts told the producers and industry leaders present that next year should be a good year because of current favorable prices, a world-wide shortage of flaxseed and its products, and the availability of sufficient seed of the new rust-resistant varieties.

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OIL MILL EQUIPMENT FOR SALE—Anderson Expellers, French screw presses, cookers, dryers, rolls.—Pittock and Associates, Glen Riddle, Pa.

OIL MILL MACHINERY FOR SALE: Cookers — Pumps — Presses — Cylinders — Heads — Columns — Formers — Accumulators — Hydraulic Pumps — Hot Cake Cutters and Strippers — Cake Bin Feeders — Filter Presses, 32x32 with 49 Plates — Electric Motors, 15 to 150 h.p. with starters — Shaft Coupling and Pulleys — 30" — 36" Chandler Hullers — Post and Pillow Block Ball Bearings — Conveyor Heads and Hangers — Enclosed Right Angle Drives — Elevator Belts, Buckets, Sprockets and Chain — Carver Lint Tailing Beater and Shaker.—Write, wire or phone Sproles & Cook Machinery Co., Inc., 151 Howell Street, Dallas, Texas. Telephone PRospect 5958.

Gin Equipment for Sale

FOR SALE—3 rebuilt 80-saw Murray gins, never been used. In factory crates. A bargain if you need three gins same as new.—Farmers Cotton Oil Company, Wilson, N. C.

ALL STEEL GIN BUILDINGS, any size. For immediate delivery in Texas.—Marvin R. Mitchell Construction Co., 1220 Rock Island, Dallas, Texas. Phone RAndolph 5415.

FOR SALE—Lummus cotton gin in A-1 shape. Cheap, real bargain. Late model, has 3-80 stand.—Novacek & Dubcak, Route 2, Caldwell, Texas.

GINNERS—When in need of machinery or power—call us first. We have many items of new and reconditioned equipment in stock, ready for prompt shipment.—R. B. Strickland & Co., 13-A Hackberry St., Tel. 2-8141, Waco, Texas.

FOR SALE—One complete 4-80 gin, with LeRoi engine power. Now in operation but insufficient cotton raised to justify continued operation.—Write Box "FS", c/o The Cotton Gin and Oil Mill Press, Box 444, Dallas, Texas.

FOR SALE—All steel 5-80 Hardwicke-Etter gin, complete with steel building, excellent condition. Cinned 3,020 bales in 1951. Gin to be moved. Machinery includes gin, extractor-feeders, conveyor distributor, 4-drum airline cleaner, 5-drum incline cleaner, 18 shelf tower drier and burner, in-blow condenser, all-steel press, seed sterilizer, fans and piping.—Contact Woodhigh Cooperative Gin, Route 1, Ines, Texas. Phone Victoria 4514-W3 or 3516-W3.

SPECIAL—For Sale: 11 shelf tower dryer, 1 Mitchell burner, 1 Murray burner, million btu. each. 72 in. Continental separator and dropper.—Spencers Cotton Gin Maintenance, Box 204, Georgetown, Texas.

FOR SALE—4-80 saw Murray air blast ball bearing stands, lint flue, roller bearing shafting split steel pulleys, 72" metal lined condensor, Stacy dropper, 35 and 40" fans, seed elevator, Murray Tripiex pump, press with Cameron Tramper and Holtby device. Murray steel belt conveyor, new saws. All formerly a complete battery of a two battery outfit. Also four V-belt Mitchell Special extractor, cleaner, feeders. Serial number 18937 up. All stored at Wylie, Texas. To complete this to a modern drier system have a deferred order with John E. Mitchell Co. for 4-section, Jembo Unit, conveyor distributor and 2-M gas heater. At present have 160 h.p. LeRoi gas engine, excellent condition.—Contact owner, G. E. Drewery, 819 Cotton Exchange Bldg., Dallas, Texas, night phone LAkeside 1810.

FOR SALE—4-80 Murray outfit complete to be moved, machinery only. Direct connected ball bearing gins with new fronts. Electric motors with tex rope drive on gins and fans. All-steel Hardwicke-Etter single extracting feeders.—Write R. C. Kobel, 114 North 25th, Ft. Smith, Ark.

FOR SALE—5-80 Lummus air blast gin, with all equipment.—Write Box E, Goliad, Texas.

FOR SALE—Never was better time to buy Rio Grande Valley gins than now. Have some real bargains.—Call or write M. M. Phillips, Phones 2-1171 or 3-3914, P. O. Box 1288, Corpus Christi, Texas.

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WANT to buy 80-saw Mitchell machines.—Spencers Cotton Gin Maintenance, Box 204, Georgetown, Texas.

WANTED—Two second hand Carver 106 saw linters in good shape. Also one hydraulic press cylinder.—L. C. Stokes, Mgr. Schulenburg Oil Mill, Schulenburg, Texas.

Personnel Ads

WANTED at once cotton gin man capable of erection, repairs and must be able to produce good samples, mostly Murray and Gullett gins. Must be sober, honest, reliable and be able to maintain good will with gin managers.—Write Box "ML", c/o The Cotton Gin and Oil Mill Press, Box 444, Dallas, Texas.

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ALL STEEL BUILDINGS for cotton industry—warehouses, cottonseed houses and gin buildings.—Marvin R. Mitchell Construction Co., 1220 Rock Island, Dallas, Texas. Phone RA-5415.

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FOR SALE—New and rebuilt Minneapolis-Moline power units in stock, all sizes. Sales, parts and service, day or night.—Fort Worth Machinery Co., 913 E. Berry St., Fort Worth, Texas.

HEAVY STEEL TANKS—Three around 54" diameter by 14 foot and 16 feet long heavy boiler shells converted to fuel storage tanks by removing tubes and welding up flue sheets. $100.00 each, locations near Waco.—R. B. Strickland & Co., 13-A Hackberry St., Tel. 2-8141, Waco, Texas.

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3—125 hp. 3/60/440/900 rpm, slip ring
2—125 hp. 3/60/2200/900 rpm, squirrel cage
2—125 hp. 3/60/440/900 rpm, slip ring
1—100 hp. 3/60/2200/900 rpm, squirrel cage
2—100 hp. 3/60/220/900 rpm, squirrel cage
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Greece Ups Cotton Acreage

The area planted to cotton in Greece during the 1951-52 season is estimated at 219,000 acres in a preliminary report by the Hellenic Cotton Board. This is a 15 percent increase above the 191,000 acres harvested in 1950-51, from which a crop of 117,000 bales (500 pounds gross weight) was picked.

Stocks of cotton in Greece on July 1 were estimated at 63,000 bales, of which 46,000 bales were in the hands of farmers.

• The U.S. has more than 50,000 food manufacturing plants and more than 500,000 retail grocery stores.

Four-row cultivator operating in a field of young cotton in South Texas.

Mechanization Conference Report

Cotton Mechanization Management and Costs

By Dr. GRADY B. CROWE

■ **Extracts from address before the Fifth Annual Cotton Mechanization Conference at Chickasha, Okla., Nov. 8-9, 1951.**

FIRST, I SHOULD LIKE to take this opportunity to express my appreciation for the invitation to appear before this Fifth Annual Beltwide Cotton Mechanization Conference and discuss a subject in which I am keenly interested—the mechanization of cotton production.

My main purpose, in this paper, is to compare efficiency, measured in terms of returns to land and management and relative costs of producing cotton of varying levels or degrees of mechanization. In order to make the discussion as specific as possible I have taken a 750 acre Delta plantation with 110 acres of woodland and the remainder potential cropland and have budgeted 3 farm organizations, each representing a different degree of mechanization. An attempt has been made to have the same relative degree of operating efficiency within each system. In other words, differences in returns and relative costs reflect the differences due to the degree of mechanization. This is essentially the type of evaluation an operator who is considering a shift to a more mechanized operation would need to make.

The 750 acre unit was chosen because it approaches the model size of plantations in the Delta area of Mississippi and because it is large enough for an operator to obtain a relatively high level of operating efficiency.

Dr. GRADY B. CROWE is Agricultural Economist with USDA's Bureau of Agricultural Economics, Stoneville, Miss.

The first system is characterized by cropper labor and the use of mule power and will be referred to as the *non-mechanized* system. The second, referred to as the *partially mechanized* system, is characterized by tractor power. One-half of the cotton and corn acreages is handled by cropper labor and the remainder of the acreage is worked by wage labor. Hand labor is used for chopping and harvesting cotton. The third system, referred to as the *mechanized* system depends on tractor power and wage labor. Flame cultivation is used in conjunction with hand labor for weed control and cotton harvesting is performed entirely with a spindle type mechanical picker. While this organization is not completely mechanized in the true sense, it goes about as far toward full mechanization as present known and accepted practices will permit.

Land Use and Cropland Organization

Now let us look for a moment at the land use and acreages of crops for the various systems (table 1). The slight increase shown in the acreage of cropland as progress is made toward mechanization is occasioned by the fact that fewer tenant houses are needed and the sites for these buildings can be used for crops. While the acreage devoted to cotton in each system is the same—300 acres, the acreages of other crops grown are quite different.

Labor Organization

Labor organizations for the three production situations are shown in table 2. The non-mechanized system depends entirely on sharecropper labor and the overhead labor shown is that which normally is associated with such an operation. The partially-mechanized system, with half its cotton acreage produced by croppers, will normally have sufficient resident labor for weed control operations but must depend on off-farm labor to harvest the 150 acres of wage cotton. The tractor drivers needed in this organization would all be members of the resident cropper families. The resident labor force in the mechanized system has been reduced to a minimum with six tractor drivers, a strawboss and a combination shopman and foreman. Families of the tractor drivers could perhaps furnish about 5 of the 20 hours of hand labor needed per acre of cotton to supplement flame cultivation for weed control. The additional 15 hours must come from off-farm sources. This means a total of about 4500 hours of manlabor would be needed for hand chopping prior to flame cultivation. To perform this operation in a timely manner would require an average of about 25 workers per day for the 20 days when cotton should be chopped. These laborers are not needed at any other time during the year. This points up the need for a mechanized method of weed control.

Mechanized Production Practices

Since our primary concern here is with management in mechanization let us review briefly the production practices that are associated with the mechanized system. Under this production system good seed bed preparation and rows of uniform width and height are a must if weed control costs are to be kept reasonable. Cotton is "hill-drop" planted to a stand with a cultivator ahead of the planter to knock down the beds and allow the seed to be deposited in clean soil. The first two cultivations are made with rotary hoe attachments for early weed control. Twenty hours of hand labor per acre have been budgeted in this system to control weeds and grasses during the interim period between emergence and the time the cotton has attained sufficient size to be flamed. Five applications of flame are to be made concurrently with cultivations.

Chemical means of controlling weeds and grasses have not been considered in these budgets. While this technique con-

tinues to offer extremely favorable possibilities at the experimental level it apparently is not yet ready for farm adoption. Farmers have gotten mixed results and opinions are well divided as to how successful this method will be based on present knowledge.

The insect control program in the mechanized system is built around the recently developed organic insecticides and application methods. Low gallonage spray rigs are mounted on the same tractors which perform the cultivation operation.

Cotton is picked mechanically after having been defoliated. Ginning is done on an elaborate modern plant which includes lint flue cleaners.

Investment

Now let us turn for a moment to the investment picture before summarizing some of the more pertinent problems of management. Outlined in table 3 are the investments required for the alternative production systems under consideration. The estimates of capital investments represent cost of replacement except for tenant houses and buildings associated with workstock which are included at depreciated values. If values were placed at replacement costs for these items the total investment would be considerably higher than that shown for the non-mechanized system. It will be noted that the largest single item of investment is land which has the same evaluation in each case. The high investment in buildings on the non-mechanized unit is due to the large number of houses necessary to house the resident labor force. While the number of buildings on the mechanized operation is sharply reduced the size and costs of the individual buildings are considerably higher and therefore the investment is not proportionately reduced. The greatest single change, as would be expected, occurs in the investment in power and equipment, which rises from roughly $9,000 on the non-mechanized operation to over $50,000 on the mechanized unit. This represents an investment in power and equipment on the mechanized operation of roughly $83 per acre of cropland. This is where the factor substitution takes place—capital for labor. Operating capital requirements remain about the same. This figure is high on the non-mechanized unit because of the heavy requirements for cash advances to tenants.

The major items of power and equipment which account for the $51,000 investment in machinery and which would be needed to operate the mechanized unit are shown in table 4. There is a good relationship between crop acreages and power and machinery.

Labor Requirements

One of the most spectacular changes that occurs with the shift to mechanization is the drastic reduction in labor requirements. On a plantation such as the non-mechanized one described here it requires about 160 hours of man labor to grow and harvest a bale of cotton. On the completely mechanized operation with average weather this can be reduced to about 30 hours of man labor. The real crux of the problem, however, and the thing that makes this reduction somewhat of a paradox revolves around the 20 hours of hand labor that are still needed for weed control. Reduction in labor requirements for other operations have simply tended to greatly accentuate the labor requirements for this purpose. The entire cropping system hinges on the ability to get needed labor for chopping during a short period in the spring. Just such problems as this will tax the ingenuity of management until such requirements have been eliminated and complete mechanization is feasible.

Plantation Costs and Returns

Now let's take a look at the costs and returns situation for the entire plantation, for this is where the picture comes into sharpest focus. Estimates of costs and returns for the three production systems are shown in table 5. In estimating costs and returns the following assumptions were made: The quantities of seed, fertilizer and poison are those recommended by production specialists for the various systems. The yields, labor and power requirements are those that could reasonably be expected with these inputs of fertilizer and poison under weather conditions. Prices of lint, seed and other products as well as unit prices of items purchased approximate the 5 year average 1946-50. Estimated returns to land and management from the completely mechanized system are about $25,000 greater than from the non-mechanized system and about $9,000 more than the returns from the partially mechanized system. These differences are due largely to the reduction in the cost of labor affected

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Table 1. Land use and cropland organization, 750 acre plantation with varying levels of mechanization, Delta area of Mississippi

Item	Non-mechanized	Partially mechanized	Mechanized
	Acres	Acres	Acres
Land Use:			
Cropland	600	610	620
Woodland	110	110	110
House sites, ditches and turn-rows	40	30	20
Total	750	750	750
Cropland Organization:			
Cotton (cropper)	300	150	—
Cotton (wages)	—	150	300
Corn (cropper)	90	50	—
Corn (wages)	90	30	60
Cate	25	80	90
Lespedeza hay	—	(80)	(90)
Soybeans for beans	—	120	150
Soybean hay	70	—	—
Gardens	15	7	3
Idle	10	23	17
Total	600	610	620

Table 2. Labor organization, 750 acre plantation with varying levels of mechanization, Delta area of Mississippi

Item	Non-mechanized	Partially mechanized	Mechanized
	Number	Number	Number
Share-cropper families	30	15	—
Tractor drivers	—	5[1]	6[2]
Strawboss	1	1	1
Shop man and foreman (combination)	—	1	1
Blacksmith	1	—	—
Hostler	1	—	—

[1] Two regular and three seasonal, all from share cropper families.
[2] Three regular and three seasonal.

Table 3. Investment requirements, 750 acre plantation, with varying levels of mechanization, Delta area of Mississippi

Item	Non-mechanized	Partially mechanized	Mechanized
	Dollars	Dollars	Dollars
Land	126,450	126,450	126,450
Buildings and improvements	22,500	15,000	12,000
Power and equipment	6,270	33,839	51,315
Workstock	3,200	600	------
Operating capital	23,299	21,507	23,576
Total	181,719	197,396	213,521

through the shift to mechanization.

Thus it appears that under the assumed price cost relationships and with *normal weather* the mechanized system would be more profitable than the other two systems. However, there is another side to the problem which needs consideration. What about the years of unfavorable weather at chopping time? The element of risk, because of the labor peak at chopping time, is much greater with the mechanized system. These risks are indeed difficult to evaluate. The hazards involved can take the form of greatly increased wage rates and/or much higher labor inputs per acre for chopping and/or a reduction in yield because of the lack of timely and thorough performance. Apparently these hazards materialized in 1951 and all of these conditions prevailed to such an extent that larger than average abandonment occurred and costs will be much higher and returns will be lower than with the normalized situation presented in this paper.

Cost of Producing Cotton

These cost data should be considered relative rather than total costs since charges for land and management have not been included.

In making these calculations overhead, other than land and management, has been distributed to the various enterprises in the various systems on the basis of the gross value of the crop. Using this method about 80 percent of the specified overhead has been charged to the cotton enterprise. If the value of seed is deducted from the total specified costs for the cotton enterprise a net figure can be obtained. The net cost, excluding land and management, is about 8 cents per pound less with the mechanized system than with the partially mechanized system. If it is assumed that the additional risk involved is equal to the complete abandonment of a crop during June or July once in 10 years, or an average abandonment of 10 per cent each year, the average cost per pound of lint under the completely mechanized system would be increased by about 1.3 cents per pound. It should be pointed out that even in the case of the partially mechanized system, the operating efficiency is considerably above the average of that for all farms in the area, therefore, these costs are no doubt considerably lower than the average for the area.

Table 4. Major items of power and equipment, mechanized unit, Delta area of Mississippi

Item	No.
Tractors (4-row)	6
Stalk cutter (2-row)	2
Middle breaker (3-row)	3
Turning plow (3-pan)	1
Disks, tandem	2
Disks, bush and bog	1
Planters (4-row)	2
Fert. distributor (solids)	1
Section harrow (4-row)	1
Cultivator (4-row)	4
Grain drill	1
Combine	2
Rotary hoe attachments	2
Pick-up truck	1
Mowing machine	1
Side delivery rake	1
Pick-up hay baler	1
Anhydrous ammonia dist. (4-row)	1
Anhydrous ammonia storage tank (500 gallons)	1
Insect spray rig (4-row)	2
Flame cultivator	3
Corn picker	1
Cotton picker	2
Trailers (3-bales)	5
Shop equipment (dollars)	3,000

"A Practical Potential"

The mechanized production system outlined here is not deemed to be an immediately attainable goal for the bulk of the cotton producers in the alluvial areas of the mid-belt. It is rather thought to be a goal toward which they can move in their gradual shift to complete mechanization. The most important management problem confronting the cotton producers considering mechanization probably is this question: Is it more profitable for me to maintain a resident labor force sufficient for my requirements or go further into mechanization and depend on transient or off-farm labor with all its uncertainties to meet my peak requirements? This emphasizes that fact that, in humid areas, full benefits of mechanization cannot be realized until the need for hand labor in weed control can be practically eliminated.

Until a low hand-labor requirement method of weed and grass control becomes practicable and dependable the practical optimum level of mechanization for most farms is probably one step short of the mechanized system discussed in this paper. Perhaps a better way of stating it is, the practical optimum is a system which includes a resident labor force sufficient to effectively supplement mechanical weed control even during a year of unfavorable weather. The relatively small resident labor force would spend full time picking cotton during the harvesting season but most of the

Table 5. Costs and returns, 750 acre plantation, with varying levels of mechanization, Delta area of Mississippi

Item	Non-mechanized	Partially mechanized	Mechanized
	Dollars	Dollars	Dollars
Returns:			
Crop sales	68,816	80,488	75,083
Expenses:			
Crop production	48,397	42,916	26,860
Overhead	8,173	8,915	10,544
Total	56,570	51,831	37,404
Returns to land and management:	12,246	28,657	37,679

Table 6. Relative costs of producing cotton, 750 acre plantation, with varying levels of mechanization, Delta area of Mississippi

Item	Non-mechanized	Partially mechanized	Mechanized
	Dollars	Dollars	Dollars
Production costs	37,915	34,541	19,103
Allocated overhead	6,865	7,132	8,274
Total costs (excl. land and mngmt.)	44,780	41,673	27,327
Seed credit	8,988	10,038	9,338
Net cost (excl. land and management)	35,792	31,635	17,989
Pounds lint produced	128,400	143,400	133,362
Cost (excl. land & mngmt.) ¢ per lb.	27.9	22.1	13.5

cotton would be harvested mechanically. This practical optimum would be reached by adding a mechanical picker to the partially mechanized system and perhaps reducing the number of cropper families slightly.

I should like to make one further observation. Mechanization is more than the mere performance of a production operation by the use of a machine. It must be based on a vast system of facilities and services, research and education, training and experience, all of which go to make up the complex environment in which a great staple crop like cotton can be mechanized.

Burma's Oilseed Production Increases in 1950-51

Burma's production of oilseeds in 1950-51 is estimated at 224,000 short tons, an increase of more than one-fifth from the 185,000 tons produced during the previous season, reports to USDA indicate. This output consists of peanuts, sesame and cottonseed, the three principal oilseed crops grown in Burma.

Other sources of vegetable oils of some importance in Burma are coconut, rape, mustard and tung. No recent data on acreage and production of these latter crops are available.

Peanuts are the most important source of edible oils in Burma. Production of unshelled nuts in 1950-51 was 162,000 tons, an increase of 23 percent from 1949-50. Area planted to this crop in 1951-52 is estimated at 701,000 acres, a slight increase from last year.

Two distinct types of sesame are grown in Burma, early and late. Early sesame is sown in May-June and harvested during August-September, while the late type is sown in September-October and harvested during the winter. Total production of sesame during 1950-51 amounted to about 45,000 tons, a 25 percent increase from the previous year. Area planted to both early and late sesame in 1951-52 is now estimated at 1,316,000 acres, or slightly more than the previous year.

Cottonseed is used only to a limited extent as an edible oil in Burma because of the lack of refining facilities. Data on seed production are available only by calculation from the production of ginned cotton. Output of cottonseed in 1950-51 has been placed at 17,000 tons, or about the same as in the two previous seasons. Cotton plantings for 1951-52 have been estimated at 216,000 acres.

The latest estimate for rape and mustard seed acreage is for 1947-48, when 3,000 acres were reported under cultivation. Approximately 7,300 acres of coconut trees also were reported for that year. No indications of significant changes for these crops have been noted in recent years.

Tung nuts are grown to a limited extent in the Shan states. Prior to 1942 several firms had established plantings in the area and about 15,000 acres were in tung trees. Much of this area has been destroyed or abandoned, however, and production of tung nuts in the Shan states was only about 65 tons in 1950-51. Output in 1951-52 is expected to be around 100 tons.

All of the larger and more efficient oil crushing mills in Burma were destroyed or severely damaged during World War II and the subsequent civil disturbance. None has been rehabilitated and as a result all oil extraction is by small power mills or by crude farm devices. Since most of the seed is processed on the farm, inefficient extraction and large oil losses are reported. Production of oils under these conditions can only be approximated. The 1950-51 oil outturn of the three chief crops probably amounted roughly to 50,000 tons. Prospects for improvements in processing facilities appear remote for the near future since private firms are hesitant to expend funds until a greater degree of law and order prevails.

Vegetable oil imports during the 1951 fiscal year (ending Sept. 30) were 20,406 tons. Peanut oil from India and coconut oil from Malaya usually make up the bulk of Burma's vegetable oil imports.

1951 Oilseed Production In Greece Is Up

Greece's 1951 oilseed production, excluding olives, is tentatively estimated at 83,450 short tons, an increase of about 10 percent from last year's output of 76,280 tons.

Commercial cottonseed production, accounting for 70 percent of the total oilseed output, is reported at a record 59,000 tons (total output calculated from lint production may approach 64,000 tons). Based on utilization records of preceding years, approximately 6,100 tons of seed will be reserved for next season's seeding, 3,300 tons for cattle feeding, and 49,600 tons available for crushing.

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Mechanization Conference Report

Agronomic Aspects Of Mechanization

By DR. A. H. MOSEMAN

■ **Extracts from address before the Fifth Annual Cotton Mechanization Conference at Chickasha, Okla., Nov. 8-9, 1951.**

WE STILL HAVE a long way to go to reach *complete cotton mechanization*. While partial mechanization has been effected in some areas, the fact remains that most of this year's 17 million bale cotton crop was produced with *costly hand labor*. Growing cotton in much of the Cotton Belt—especially in the older part of the Belt—is still a "one man and a mule" operation.

The two biggest barriers currently holding back complete cotton mechanization are defoliation and weed control. It seems apparent that as long as cotton growers must keep hoe-hands around for weed control, they will continue to use hand labor for harvesting and other operations. I am convinced that for the majority of cotton farmers it will be "all or nothing at all" as far as mechanization is concerned.

Your Conference Steering Committee has asked me to discuss "The Agronomic Aspects of Mechanization." I want to underscore the fact that defoliation and weed control are both *agronomic problems*. In fact, it is the *agronomic aspects* that make the cotton mechanization problem so highly complex.

For example, the trash problem created by mechanical picking cannot be fully solved without efficient defoliation and effective weed control. Advances in weed control may require changes in planting methods. Planting methods are influenced by soil types, seedbeed preparation, and seed delinting. Mechanical delinting, unless properly done, can have a bearing on seed viability and disease susceptibility.

Dr. A. H. MOSEMAN is Chief of the Bureau of Plant Industry, Soils, and Agricultural Engineering, USDA, Beltsville, Md.

In effect, there is a chain reaction that ranges through all phases of cotton production. A change in one phase of the operation often calls for changes in accompanying phases, making the problem highly complex under any given set of conditions.

Furthermore, there are hundreds of different sets of conditions across the Cotton Belt, which further magnify the complexity of the problem. Cotton is produced over an extremely wide area comprising many different kinds of soil that vary considerably in tilth and slope. There is a wide range in size of farms, climatic conditions, and cropping systems.

The problem is so complicated that it is humanly impossible for any one research worker to give intensive study to all phases of it. Consequently, a strong cooperative regional cotton mechanization research program has been developed. The U. S. Department of Agriculture, experiment stations in all cotton states, and numerous industrial organizations are all cooperating. We are pooling our efforts in tackling this difficult problem.

First, let's examine the phase of adapting cotton varieties to mechanization through breeding.

Considerable effort is being expended toward this end. Modification by breeding, however, takes a period of years—even with good fortune. Cotton breeders are concerned with more than forty different characters in the cotton plant. Consequently, there are heavy odds against getting all the desired characters together into one variety in a short period of time.

Current breeding efforts are being concentrated on a wide variety of factors. These include quicker seedling emergence, more seedling vigor, upright habits, fruit setting higher on the plant, more uniform distribution of bolls, smooth leaves, fiber types that are more easily cleaned, narrower range in maturity, storm proofness, disease resistance, better spinning performance, higher yields, and many others. Obviously, the breeders are confronted with a complex juggling proposition. But, progress is being made.

In the high and rolling Plains area, for example, storm-proof varieties have been developed that are particularly adapted to stripper type harvesters. In the mid-South and far-West some promising new strains are now being tested that appear better adapted to spindle type pickers than varieties now in use.

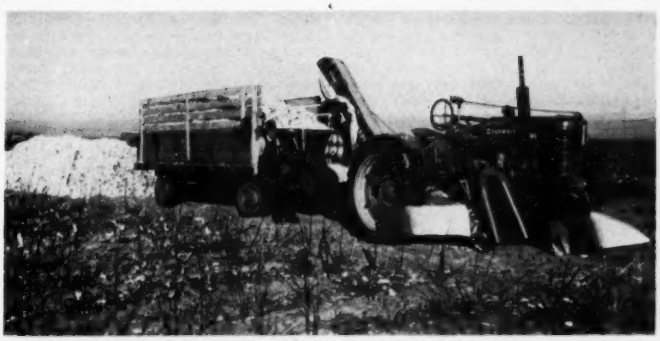
They have found also that inheritance plays an important role in seedling emergence. Some varieties come up quicker than others. In California this year, under ideal conditions of moisture, temperature, etc., as much as 10 days difference was found among varieties in the length of time required for germination and seedling emergence.

Seedling vigor, likewise, has been found to be an inherent character in cotton. Improved varieties that would come up quickly and grow vigorously during the seedling stage could have an important impact on mechanized weed and grass control.

Breeders also are working on smooth leaved varieties—leaves without hairs. Among varieties they have found a wide variation in the density, persistence, and shape of hairs. In the not too distant future varieties can and will be developed that will be sufficiently free of hair to considerably reduce the trash problem.

In connection with the trash problem,

(Continued on Page 72)



More and more strippers are used each year to harvest the cotton crop, especially in Southwestern Oklahoma and on the South Plains of Texas.

Mechanization Conference Report

The Effect of Mechanical Harvesting on Quality

By LEONARD J. WATSON

■ **Extracts from address before the Fifth Annual Cotton Mechanization Conference at Chickasha, Okla., Nov. 8-9, 1951.**

AN ANALYSIS of the effects of the rougher methods of harvesting on the grade and processing performance of cotton would include the following: (1) Ginning equipment and handling methods required; (2) difference in gin turnout; (3) effect on grades and values of the cotton; and (4) spinning performance of the cotton.

Because of normally dry climatic conditions, cotton reaches the gin in a relatively dry condition in West Texas and Oklahoma. The ginning requirements for the handling of hand-snapped and machine-stripped cottons in these areas are approximately the same for the reason that cottons harvested by these methods contain a preponderance of foreign matter. Until frost occurs, there is very little deterioration in the cotton in the field and the burs usually remain firm. Burs in this condition do not break up in the cleaning machinery as is the case in the more humid sections of the Cotton Belt. The type of cotton grown and the condition of the foreign matter present, together with the low-moisture content of the seed cotton when it reaches the gin, tend to contribute to relatively easy foreign-matter removal by the seed-cotton cleaning equipment.

In order to perform a good job of cleaning and extracting and to produce acceptable grades on stripped cotton, the gins in this area should be equipped with at least the equivalent of the following machinery: a cylinder cleaner; tower drier; screen-type cleaner; a full-size bur machine; cylinder drier; large extractor feeders; and perhaps lint cleaners. The screen cleaner is placed ahead of the drier in the gins in this area so as to remove as much of the sand as practicable and thus avoid excessive wear in the remaining cleaners and the cotton-handling system. In some instances it is necessary to split the stream of cotton from the drier or second cleaner into two bur machines in order to cope with the large quantity of burs and provide an even flow of cotton to the gin stands. The number of bur machines is dependent on the number and size of the gin stands. Also, it has been found advantageous to employ a green-boll catcher in the cotton suction line from the wagon.

LEONARD J. WATSON is Cotton Technologist in Charge, College Station Cotton Laboratory, Research and Testing Division, Cotton Branch, USDA, College Station, Texas.

Results of tests show that machine-picked cotton of normal moisture content can be subjected to as much as 24 cylinders of cleaning, a bur machine, and extractor feeders and lint cleaners after having been passed through a tower drier or combinations of equivalent equipment, without adversely affecting the spinning quality of the lint. In areas of heavy rainfall a second drier would be advantageous. It should be pointed out, however, that the foregoing represents a maximum of machinery and is not generally necessary except in extreme cases. Usually 14 to 18 cylinders of cleaning, with adequate drying, bur-extracting equipment in proper sequence, and followed by lint cleaners, have been found to be adequate.

The preparation of fields of cotton for mechanical picking is of primary importance. Grade differences of one to two grades have been noted between cotton harvested from clean well-defoliated fields and from grassy undefoliated fields when ginned on the same gin. It is fortunate that the ginning machinery requirements for handling hand-snapped cottons approach those recommended for machine-picked cottons. This fact makes it possible for the ginner who has been handling hand-snapped cotton to perform a creditable job on machine-picked cotton without a large outlay in expense for additional machinery should his customers resort to the use of mechanical harvesters.

There are wide variations in hand-picked cotton, but it may be ginned very successfully on any of the ginning set-ups mentioned if adequate bypasses are provided. Usually the average hand-picked cotton requires less elaborate ginning equipment than do the hand-snapped and machine-harvested cottons. A good drying system with the equivalent of one cylinder cleaner, a bur machine, and extractor feeders will prove satisfactory for the ginning of hand-picked cotton. During the early part of the season when the cotton is relatively clean, the cleaner and bur machine may be bypassed. During the latter part of the season it may be found that all the ginning equipment as well as lint cleaners will be necessary to perform a good job of cleaning.

Modern gins that provide adequate cleaning and drying facilities remove relatively large proportions of moisture and foreign matter from roughly harvested seed cotton, and at the same time no excess spinnable lint is left on the seed. If grades are lower for this cotton, there is some compensation to the producer as part of the weight of the bale is composed of foreign matter. This ranges from 18 pounds for Middling to 52 pounds for Strict Good Ordinary. The modern gin cannot be expected to produce high grades from roughly harvested cotton and at the same time maintain high turnout percentages comparable with those for clean hand-picked cotton.

The average percentages of gin turnout for cottons produced in the Cotton Belt in 1950-51 were as follows: Hand-picked cotton, 37 percent; Hand-snapped cotton, 26 percent; Machine-stripped cotton, 23 percent; Machine-picked cotton, 36 percent. The turnout percentage for hand-picked cotton exceeded that for

machine-picked cotton by only one percentage point. Available information indicates that the disparity as between harvesting methods may be greater during the early part of the season, or before defoliation has been accomplished, and where large amounts of green leaf trash are included with the machine-picked cotton. However, during the later part of the season when hand-harvesting conditions deteriorate and plant foliage has largely been removed, turnout percentage for machine-picked cotton may be approximately equal to that for hand-picked cotton.

A comparison of hand-snapped cotton with machine-stripped cotton shows a wider variance in turnout percentage. Turnout for hand-snapped cotton averaged three percentage points higher than that for machine-stripped cotton, which was probably owing to the time of harvesting. In the Southwestern part of the Cotton Belt, it is a common practice to employ hand-snapping during the early part of the season, or after frost has occurred. The machines strip the cotton plants of all vegetative matter, including burs, stems, and leaves.

Mechanical cotton harvesters can affect the grade of lint not only by influencing the amount of trash but by producing discoloration in the seed cotton during picking and by causing a varying degree of twisting or tangling of the fibers under extreme conditions.

The various ways in which machines can *reduce* grades of lint below the grades that might be attained by hand picking may be summarized as follows:

1. Introducing excessive discoloration from green plant leaves early in the season.
2. Introducing more trash from the dead cotton plants late in the season.
3. Gathering more foreign matter from weeds or grass in the field.
4. Adding excess moisture (in spindle moistening) to the lint and trash, making trash removed by gin cleaners more difficult, and inducing graying or mildew if ginning is delayed.
5. Twisting or tangling the lint on the spindles, thus increasing the difficulty of normal gin preparation.
6. Discoloring the lint with oil or grease from the machine.

Although mechanical harvesting, in most instances, reduces the grade of cotton under that resulting from conventional manual methods, there are instances in which mechanical harvesting may *improve* the grade of the lint. The harvesting mechanism may pass over "hard to pick" bolls late in the season; also, mechanical pickers add less trash than careless hand pickers under certain conditions. More important, mechanical picking contributes to "timeliness" of harvesting. The grade of the crop may average higher if harvested earlier by machine than if harvested later by slower hand picking.

From the foregoing, it appears evident that no fixed differences occur between grades of cotton harvested mechanically and manually. Available data show the following comparisons to be true: In those areas where the gins are not adequately equipped, hand-snapped cotton is usually one to two grades lower than hand-picked cotton. However, in those areas that have adequately equipped gins, the grades of hand-snapped cotton, in most instances, will equal those of hand-picked cotton, especially during the late season.

The grade of machine-stripped cotton is usually lower than that of hand-snapped cotton. Results from field studies of the Cotton Branch show that machine-stripped cotton averages one-third to two-thirds grade lower than the cotton harvested by hand-snapping methods.

Studies in Texas have shown the date of harvest materially affects the grade of cotton. A study of 11 varieties harvested at early-season, midseason, and late-season dates showed a drop of one to two grades from early to late season. Results of the studies also showed that staple length is not significantly affected when cotton is machine-stripped.

As a general rule, machine-picked cotton averages about one grade lower than hand-picked cotton early in the season. Late-harvested machine-picked cotton often equals hand-picked cotton in grade, thus making the seasonal differences average much less than one grade. Therefore, the evaluation of cotton harvested by these two methods should be on a complete-season basis. The harvesting date materially affects the grade of cotton harvested by hand or machine.

Cotton having a staple length less than one inch usually cleans better and grades higher than does cotton more than one inch in length. Similar results were obtained from 3-year tests in Texas. The Texas tests also showed that the difference in the percentage of burs and trash removed from cotton harvested by hand-snapping and machine-stripping is not significant. Fiber properties and classers' staple length were not appreciably affected by the method of harvest, as were the grades of cotton.

Tensile strength is primarily dependent on variety, soil conditions, and weather during the growing and ginning season. It is not affected by the gin-cleaning machinery but very high drying temperatures have been found to weaken the fiber to some extent. Uniformity is associated with the fiber length of cotton. Therefore, harvesting and ginning have a direct bearing on it. Excessively high drying temperature on relatively dry cotton reduces the uniformity as a result of fiber breakage. Also, close ginning of the seed, which is one of the results of tight-roll ginning, causes the inclusion of short linters fibers in the ginned lint, thereby adversely affecting the uniformity. These short fibers make very little difference in turnout and are removed as waste at the spinning mill. Reduction in uniformity can generally be associated with reduction in staple length whether from overdrying or tight seed-roll operation.

Neps do not occur in nature but are largely the result of handling and the manipulation of the fibers incident to cleaning, ginning, and processing of cotton. Some varieties nep more easily than others. Also, dry weather and certain insect damage, as well as the early application of defoliants, will hinder the full development of cotton fiber and will result in an increased tendency of the cotton to nep. Excessive overhead cleaning machinery and tight seed-roll operation will tend to cause neps in varying degrees. Spinning-mill cleaning practices, like certain abusive gin-processing methods, will also cause neps. The use of too much cleaning machinery in mills is a well-known cause of nepping. Also, fast carding increases neps.

Spinning tests reported by the Texas Experiment Station, as well as the U.S. Department of Agriculture, have shown that from the standpoint of the manufacturers, the most important factor affected by the method of harvesting is the amount of waste or foreign matter in the lint. The quality of the manufactured yarn was not affected by the method of harvesting except for the slight lowering of the appearance grade for the long and finer cottons. There was considerably more picker and card waste in machine-picked cotton than in hand-picked cotton in preparation for spinning. Data available at the Texas Agricultural Experiment Station indicate that yarns spun from stormproof varieties of cotton become stronger as the harvest season lengthens, whereas the yarns from open-boll varieties become weaker the longer the cotton is left in the field.

Tests conducted by USDA Spinning Laboratory show results similar to those reported herein. The most striking difference in quality of lint was in the amount of foreign material and a corresponding difference in yarn grade for different methods of harvesting. The yarn strength was about the same when comparing hand- and machine-picked cotton harvested during the same period. Yarn strength decreased as the season progressed for both methods of harvesting. This strength reduction was more pronounced in the fine-count yarns. An increased nep count was reflected in decreases in yarn appearance of the fine-count yarns during the latter part of the harvesting season.

Farm Machinery Outlook

(Continued from Page 27)

nomic policy. Either the farm equipment producer will be forced to shift his facilities to the manufacture of defense or other products which, necessary as they are, will be of no practical and immediate help to agriculture; or cut production and services in an attempt to weather the storm, thereby losing employees who are not easily replaced and weakening his organization. Should such things happen and the error be realized at a late date, several years will be required to remedy the situation.

Now I remind you that this sort of thing did happen in 1943 because of an impractical and short sighted policy on the part of certain individuals in government who believed farm equipment to be non-essential. This tragic error was corrected eventually by the personal concern of President Roosevelt at the urgent recommendation of Senator Harry Truman of Missouri. I think you will agree with me that such a situation must not happen again, and I do not believe it will happen again, but I point out that the forecasted production curve is headed in the wrong direction.

No one need argue the importance of an abundance of food and fiber in the health, morale, and economy of this nation and our allies in times of war, peace or rearmament. The unhappy situation is that too many people in government and in industry believe the only problem of agriculture to be one of over-production, not realizing that our expanding requirements and increasing population depend upon greater yields from available acres being worked by fewer men. That answer will be found only in soil conservation and increased soil fertility and in labor saving, more efficient, farm mechanization.

MAJOR GENERAL ROSCOE B. WOODRUFF (right) presents certificates of appreciation by the Department of Defense to Dr. Kyle Ward, Jr. (left) and Dr. K. S. Markley.

Drs. Ward and Markley Receive Defense Department Awards

Two scientists of the Southern Regional Research Laboratory were awarded certificates of appreciation by the Department of Defense recently for services rendered with the Technical Industrial Intelligence Committee, Joint Chiefs of Staff, during World War II.

The certificates were presented by Major General Roscoe B. Woodruff, commanding general of Camp Polk, La., and the XV Army Corps, to Drs. Kyle Ward, Jr., and K. S. Markley at a ceremony in the laboratory auditorium recently at which Dr. C. H. Fisher, director of the laboratory, presided.

Dr. Ward is head of the laboratory's Cotton Fiber Division, while Dr. Markley is head of the Oil and Oilseed Division. Both are well known in this country and abroad for outstanding research in their respective fields. They were loaned on special assignments to the Army by USDA in 1945 to help obtain information on food and agricultural conditions in the occupied areas of Europe.

In his presentation remarks, Gen. Woodruff attributed to scientists in general the achievements that enabled us to produce, in the quantities needed, the weapons for the defense of our liberties during World War II, but emphasized that research is basically for peace.

"It is noteworthy," he said, "that the Armed Forces have called upon our scientists for not only the weapons of war, but for research that has improved our nation's standard of living . . . a never ending search for the new product that will help in some way the improvement of the human race."

Dr. Fisher responded by pointing out that the research program of the Southern Regional Research Laboratory has been modified to make its research most suitable for current conditions and that it is now working actively with most, if not all, the military laboratories and agencies responsible for defense research.

At the close of the ceremony, the New Orleans Commissioner of Public Streets, Walter M. Duffourc, representing Mayor de Lesseps S. Morrison, presented certificates of honorary citizenship to Drs. Ward and Markley.

Iranian Oilseed Outturn Is Less Than in 1950

Total production of all oilseeds in Iran during the 1951 crop year is now forecast at about 105,300 short tons, compared with 115,190 tons in 1950 and 102,510 tons in 1949.

Of the 1951 production of oilseeds, cottonseed is by far the most important, accounting for approximately 56 percent of the total, or 59,500 tons (commercial production). Olives and poppy seeds come second, each with 11,000 tons. The remaining tonnage is made up of the following: sesame seed, 10,600 tons; castor beans, 8,300; flaxseed, 2,300; and miscellaneous other oilseeds, 2,600 tons.

The cotton crop is somewhat smaller than last year, due to unusually dry weather during the growing season. Acreage of poppy seed grown in 1951 is reported to be considerably less than in 1950, owing to stricter government control. Other oilseed production is expected to run more or less the same as in 1950 with only minor variations.

Preliminary estimates place 1951 production of vegetable oils at around 12,000 tons. This is some 300 tons less than the 1950 production but is 840 tons more than was produced in 1949.

Cottonseed oil production in 1951 is forecast at about 5,000 tons, or more than 40 percent of total vegetable oil production. Castor oil comes second with 3,200 tons, or about 27 percent of the total. Production of other oils is as follows: sesame, 1,210 tons; olive, 940; poppy, 930; linseed, 600; and miscellaneous other vegetable oils, 210 tons.

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Insect control is one of the most important steps in profitable cotton production.

Mechanization Conference Report

Integrating Mechanization Education and Research

By J. D. PREWIT

■ **Extracts from address before the Fifth Annual Cotton Mechanization Conference at Chickasha, Okla., Nov. 8-9, 1951.**

COTTON GROWERS TODAY are faced with their greatest challenge. Producers of competitive fibers, through research and promotion, have so strengthened themselves they threaten to take much of the market through lower cost of production and improved quality. The cost of producing a bale of cotton is the highest on record, and the spread between cost of production and income from a bale of cotton is alarmingly narrow in much of the producing areas.

To help the cotton growers of Texas overcome these problems, a well-coordinated program of research and extension at Texas A. & M. College is being followed. The close cooperation of the extension and the research programs has increased the efficiency of both. We in Extension are able to carry information to the field at least one season ahead of that which was possible in the past. We are able to watch the various tests while they are being made and can answer questions in the field concerning the projects. We can inform research personnel of farmers' desires and present practices. Ideas on new equipment, or in some cases ideas regarding new uses of present equipment, can be passed on to research engineers for modification and improvement.

Although we like to believe that we contribute basic ideas to the country, industry too has been active in advancing the progress of mechanization. Until the past few years with a few exceptions, such as the development of the cotton stripper by the Texas Experiment Station, industry has produced equipment and we have made studies toward improvement. At the present time farm mechanization has definitely turned to development of specialized equipment which has, in many cases, been carried on by combinations of industry and research personnel.

J. D. PREWIT is Associate Director of the Texas Extension Service, College Station.

Cotton is by far the leading single source of cash income to the farmers of Texas; normally it accounts for about 40 percent of the nation's acreage and one-third of the production.

It is to be expected, therefore, that research with cotton should be a principal activity at Texas A. & M. and the cooperating research agencies. At its main station and at a majority of its 33 substations and field laboratories there are currently 35 active studies with cotton. About one out of each nine of the formal research projects of the entire Experiment Station System is concerned with cotton.

The findings of these studies are of prime importance in carrying out the 7-Step Cotton and Balanced Farming Program in Texas.

Briefly, the seven steps are:

1. Fit cotton into a balanced farming program;
2. Take care of your soil;
3. Act together on the best variety;
4. Make your labor count;
5. Control insects and diseases;
6. Pick and gin for high grade;
7. Sell for grade, staple and variety value.

Under this framework the best results of research work on cotton have been assembled, organized and presented to producers by the Texas Extension Service. In doing this job, the cooperation of all agencies in position to help was obtained. Also, the allied interests including ginners, oil millers, insecticide and fertilizer dealers, machinery and implement dealers, bankers, newspapers and radio farm directors have actively supported the program on a state as well as on a county level.

A 7-Step Cotton Committee, composed of these key people and leading cotton farmers and farmers' organizations, has been organized in each of the major cotton growing counties by the county agricultural agent. This group plans and carries out the program in the county, thus insuring organized activity on a county and community basis.

A measure of the effectiveness of this type of approach can be obtained by taking a brief look at the plans started in September of 1950 for the 16,000,000-bale crop requested for 1951. Following district meetings in October, the county 7-Step cotton committees held community and county meetings in November and completed a state-wide survey in December which indicated that cotton would be planted in 226 counties in Texas in 1951 and that the acreage would exceed that planted in 1949. Also farmers indicated they would:

1. Control insects by poisoning 8,385,070 acres;
2. Fertilize 2,374,500 acres;
3. Purchase 7,500 new cotton mechanical strippers in 91 counties;
4. Purchase 582 new spindle pickers in 74 counties.

The record shows that Texas producers planted 13,125,000 acres and will produce an estimated 4,300,000 bales even though moisture conditions were unfavorable.

Both with and without acreage controls we have advocated fitting cotton into balanced farming. This means planting clovers and other soil-building legumes. Last year 43,181 farmers conducted a well-balanced farm program in 162 cotton counties.

Seeding clovers in the fall by airplane is not uncommon. Inoculation

(Continued on Page 74)

Cotton mechanization field demonstrations never fail to attract big crowds.

Mechanization Conference Report

Field Demonstration of Cotton Mechanization

By E. W. SCHROEDER

■ **Remarks made in connection with the field mechanization demonstration at the Fifth Annual Cotton Mechanization Conference at Chickasha, Okla., Nov. 8-9, 1951.**

IN THE SOUTHWEST, seed-bed preparation for cotton and the planting of cotton are completely mechanized. A recent survey shows that one-half of the cotton planted in Southwest Oklahoma during the last year was planted to a stand. This means that there is still about one-half or more of the cotton grown that is still being thinned with the use of the hoe and hand labor. Planting to a stand is an important factor if the production of cotton is to be completely mechanized and the cost of production reduced. The history of mechanization shows that no crop has been completely mechanized until it was planted to a stand.

Results obtained on the Oklahoma Station showed that precision planting decreased the amount of seed used by 30 percent. The most accurate planting was obtained with acid-delinted seed. There was no evidence to support the theory that thick planting gave better emergence because more plants are available to break the soil crust. Viability of seed, proper planting, and soil moisture conditions are the main factors affecting germination and emergence.

Better weed control was obtained by planting in a listed furrow with a lister-type planter than planting flat with runner-type planters. In time comparisons, the flat planting required two to four times the number of man hours of hand chopping to control weeds. Listed planting permits the movement of soil by cultivation into the row to cover small weeds and results in a deeper-rooted cotton plant which is more resistant to pulling from the soil when the cotton is machine harvested with stripper-type machines. This factor proved to be an item in reducing the number of stops due to clogging of the harvesting machines.

E. W. SCHROEDER is Head of the Agricultural Engineering Department at Oklahoma A. & M. College, Stillwater.

Successful planting to a stand requires that the planter accurately meter the desired number of seeds and deposit them in the soil with a minimum of dispersion at four and one-half to five miles per hour. Available planters do not fulfill these requirements. After considerable experimentation with component parts of planters, an experimental one-row planter was designed and built in an attempt to meet the above requirements. The essential parts of the experimental planter are a compact cell hill-drop-type plate, a star knockout, and a trajectory seed tube. The trajectory seed tube has no valves and is designed to allow the seed to fall freely without striking the sides of the seed tube. Laboratory and field tests with the experimental planter indicate that with proper plate speed in relation to ground speed, cotton can be planted at higher speeds and with less dispersion than conventional equipment will now plant it.

• **Harvesting**—Late in the summer of 1949, a cotton stripper was developed by the Oklahoma Station, cooperative with USDA, using brush stripping rolls for removing the cotton from the plant and air for conveying the cotton from the stripping rolls to a trailing wagon. The first season this machine was given limited tests on four different varieties of cotton. It performed significantly better than the spindle-type cotton picker in every case, and better than a commercially available steel-roll stripper in three of the four varieties of cotton tested. In some of the tests over 98 percent of the cotton on the plants was harvested. The first season's results also showed that cotton harvested with the experimental machine was cleaner, had less sticks, and had a higher gin turnout than cotton harvested with a steel-roll stripper. It also handled the larger cotton stalks without pulling them from the ground. Conveying the cotton from the stripping rolls to the wagon by the use of air eliminated losses occurring at the end of the row while turning, which is common and unavoidable with a mechanical conveying system.

In 1950, cotton in most of the Southwest, and especially on the Chickasha Station farm, had excessive vegetative growth, exceptionally heavy insect damage, and a low yield. The cotton plants were killed by an early heavy frost, leaving the plants brittle. Under these conditions some difficulty was encountered with an all-air conveying system. The first experimental brush stripper was redesigned, using a partial mechanical conveying system to improve the conveying system to handle cotton under these severe conditions of harvesting.

Experiments have shown that brushes properly constructed will better remove the cotton from the plant without pulling the plant and removing branches. A greater flexibility in the type of cotton that can be harvested is also obtained by the use of brushes for removing the cotton from the plant.

In a meeting after the 1950 harvest season, the Technical Committee of the regional project unanimously voted that

funds be made available to the Oklahoma Station to build three brush-type harvesters for tests across the Cotton Belt. These machines were built by a company in Oklahoma City.

The successful performance of the experimental brush-type harvester has interested the farm-machinery manufacturers to the extent that two of the major companies have built pilot models patterned after the Oklahoma machine. These machines are being tested over most of the Cotton Belt. One manufacturer located in Oklahoma City has also built and is testing a pilot model of the experimental machine developed by the Oklahoma Station.

Cotton Looks Ahead

(Continued from Page 23)

mean poor timing, lack of stamina, and foolish judgments in cotton farm labor. We find emphasis upon public health programs to an extent that many are alarmed by that trend towards socialism. One of the reasons why there is such emphasis upon public health activities is that most of us as private enterprisers have never developed effective measures to cope with health poblems of our employees. Even with the ready availability of such sound health programs as Blue Cross hospitalization, a surprisingly low proportion of cotton farmers are making sure that their employees are not missing day after day, or working much below par because of health impairments. Whenever we cry out against trends towards socialism, should we not note the presence or absence of advancements in such things as health improvements offered by free enterprise?

Big Weed Seed Population for 1952

As mentioned above, cotton farms were underpowered and undermanned in 1951. Much of the cotton was still weedy when "laid by." My own limited observations plus comments by others indicate a much greater than normal weed seed population on next year's cotton land in many areas—including substantial parts of the Southwest and California.

The lack of labor meant abandonment of thousands of acres and excessively high chopping costs in 1951. If average weather conditions were to prevail and if farmers were to pitch a large acreage next spring, the stage is set for millions of acres of grassy cotton. What can be done about it?

Mechanical cultivation and hand hoeing continue as the two main pillars for weed control. There are not enough cultivators on cotton farms to provide for timely cultivation in 1952 even though the labor force were comparable to 1951 in both numbers and efficiencies. Allowances for normal replacement of cultivators, including flame cultivators, will not get the job done.

Weedy cotton means the highest possible dollar and resources costs. Hoeing prices go sky high—$10 and more per day with ¼ to 1/3 acre covered per worker. Harvest costs and field losses in yield accompany weedy cotton. Loss in quality is often as much as three full grades. Ginning is slowed down and the presence of excessive trash is the main reason for ginners using excessive heat in drying with consequent risk of damage to the fibers. Beyond the gin, grassy cotton means added cleaning at the mill and tremendous time losses in spinning. We can ill-afford the damages of woody cotton at any time. Such conditions will be particularly damaging to the preparedness program in 1952.

Full Appraisal of Chemical Controls Needed

Chemicals offer an additional approach to weed control in cotton. The varied successes with herbicides make many farmers wary of placing full dependence upon chemical weed killers in cotton. There is ample evidence that herbicides are available that are highly effective against some grasses and weeds. Experiences this season clearly demonstrate the possibilities of salvaging cotton from heavy grass at lower costs with a combination of herbicidal oils, mechanical cultivation and hand hoeing. All available research information from public and private sources should be mobilized now to provide the best possible guidance as to materials, application methods, and suitable cultivation practices to make chemicals in cotton more dependable agents in the 1952 crop. Mr. Gerald Dearing, writing for the Commercial Appeal, suggested such a conference last week. Production of applicators and bookings of materials must be well along by January if herbicides are to be of added value next year.

Financial Risk Reductions, 1952

Farm costs are high. Farm machinery prices are high. No one can find reasons to expect prices to go down. The USDA has estimated that costs increased 10 percent on the average in agriculture in 1951. On cotton farms the increase, at least in Mid-South areas, was 20 to 22 percent in a single year. Producers are just now working out of the 1951 high-risk, high-cost situation with cotton prices hovering around 40 cents per pound. An increase of more than 60 percent in cotton production placed a terrific strain upon land resources, labor, and management capacities on farms and at gins. The 1951 season, as it unfolded, brought soul-chilling financial risks to cotton farmers and to those who provided them credit.

Such risks came mainly from three sources. One was the inability to get delivery of needed machines and supplies. My own company took delivery of seven cultivators in September. We needed them in the very worst way beginning in March. If farmers plant a big acreage and cannot get the tools they are licked. If high-level production of cotton is needed in 1952, then "buffer-stock" supplies of production requirements should be developed now to meet critical shortages.

The second area of acute financial risk is the 14 cent difference between loan levels and ceiling price under current conditions. Prospects for cost increases are such that cotton farmers are not likely to view 90 percent of parity as an adequate incentive for high-level production in 1952.

Cotton growers do not understand why they should be asked to take the full risk of production expansion of an essential raw material while other segments of the economy are provided with risk alleviation steps of one kind or another when large-scale increases in supplies are needed.

The third area of acute financial risk is yield per acre. There is a huge education job between now and next season to get much more widespread adoption of improved seeding, fertilization, cultivation, insect control, defoliation, harvesting and ginning on more cotton farms. There is much less risk involved in trying to maintain high-level production through increased yields than by keeping ill-adapted, low-yielding acres in production.

Part II—Between Now and 1975

If the physical frontier of new areas and new resources to be exploited is closed, and if in an economy like that in the United States the network of production and services is far developed, the question then arises as to what conditions will in the future provide an environment for a continued rapidly rising

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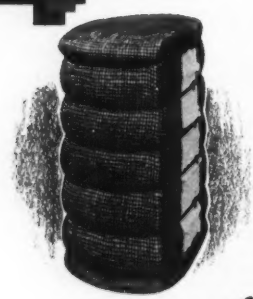

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standard of living and level of economic activity. There are no obvious buffers or safety valves through which maladjustments for the next half century can be prevented from causing economic stagnation. The answer, I think, lies in technological advancement itself; a doubling and a tripling of the rate at which new ideas are brought to a level of economic feasibility and are made part of the production practices in industry and in agriculture can itself provide the basis for a solution of this problem. It is in this context that mechanization of Southern agriculture and of cotton production in particular should be viewed. We here can contribute not only to the welfare of people in the cotton industry but to the welfare of our country and of the world's economy as well.

For cotton, the competition from synthetic fibers must be offset by technological gains as the basis for lower-cost efficient production, processing, and packaging methods and from further development of the National Cotton Council's program to promote cotton, cottonseed and the products thereof.

It must be recognized, however, that cotton is not in as precarious a competitive position as many "crepe hangers" have led us to believe. First, the currently acute world-wide sulfur shortage, which cuts into rayon production, cannot be solved quickly. Unless new mineral sulfur is found, a significant part of the future supply must come from high-cost processes such as the reduction of ferrous sulphide or iron pyrites. Labor cost increases in coal production and in pulp wood harvesting will also gradually push the cost of raw materials used in synthetics.

Of even greater importance is the increase in world population of 20,000,000 per year. The limited amount of clothing used per capita in so many parts of the world will mean large-volume outlets for cotton even if cotton only retains its present share of textile market outlets. Many relative gains are being made by cotton. For example, cotton bags are now cheaper than burlap.

Threatening Lags in Research

Speaking roughly, the systematic development of agricultural research has been of a century's duration up to now. Two patterns of research have developed from the early trial-and-error beginnings.

Industry has demonstrated that using private capital to support the work of engineers, chemists, bacteriologists, physicists, and other scientists can be made to pay in exploratory research. Often the gains have been millions of dollars in net income for every one invested in research. Direct and indirect users of such industrial products have gained much in richer and fuller lives as the fruits of such research are offered to the public in increasing numbers.

In the main, research centered directly upon agriculture has been supported by public funds from State and Federal sources. In some states these public funds have been supplemented by forward-looking leaders in industry and in farming. We have tangible evidence of the latter in this research station here at Chickasha. Leaders of the cotton industry in Oklahoma turned over very substantial sums of money to be sure that facilities and operating funds were adequate to develop an effective mechanization research program in this area. The leadership in Oklahoma's Agricultural Experiment Station and in industry are to be congratulated upon their joint efforts.

It would appear at this time that further reductions can be expected in Federal funds appropriated for agricultural research. One can be for or against such action and argue long and loudly about it. But, the need for continued progress in cotton—cotton mechanization, if you will—is such that realistically we must take specific action to offset the effects of reduced appropriations. Therefore I offer a five point program for the consideration of the cotton industry and those closely associated therewith to develop a research program of such magnitude that cotton can look ahead to an increasingly bright future between now and 1975.

Point 1: That Federal funds devoted to cotton research be used almost altogether for basic, fundamental types of investigations, leaving applied research primarily to state institutions and private research groups.

Point 2: That a limited number of centers for fundamental cotton research be developed around currently established institutions that have demonstrated in the past and agree for the future that state and local support will be increased rather than decreased as funds from the outside become available.

Point 3: That the Oscar Johnston Cotton Foundation be provided with at least $10,000,000 during the next 5 years. That the Foundation spend at least one dollar out of two in the immediate development of fundamental research in view of the urgent time preference need for basic research gains rather than retain such funds to perpetuate an even flow of earnings.

Point 4: That established centers for basic cotton research be developed adequately and empowered to do contract research for individuals and groups of individuals. This could offset the trend whereby the best scientists now available give attention to cotton problems only when their independent institution has a contract for cotton research from the government or from a private group. Buying the time of high-caliber scientists on a piecemeal basis is most ineffective when creative thinking and planning are so badly needed in cotton research.

Point 5: That a series of substantial financial awards be established by different segments of the cotton industry and closely associated industries to provide added incentives for scientific attainments in diferent kinds of cotton problems.

So far, we have talked too much about research in cotton and gotten too little of it done. The panorama which appears as cotton looks ahead is as broad or as limited as the ingenuity used by the industry and public leadership in activating research programs that will provide the basis for the consumers of the world to obtain unequalled services from the world's finest fiber—cotton.

• Proper cottonseed treatment helps prevent seed rot and loss of seedlings, according to Extension Service cotton specialists. This fact means that seed can be planted earlier, resulting in higher cotton yields.

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Agronomic Aspects

(Continued from Page 64)

you will be interested in knowing that breeders are also investigating the possibility of developing fiber types that will give less trash trouble. They are trying to develop fiber that will clean better—types that will go through cleaning machinery without having fiber quality affected.

Emphasis, too, is being given to the development of varieties that set fruit and mature early. Some varieties have been found that set a big crop in a short time and then tend to limit further fruiting. This characteristic tends to narrow the range of maturity and reduce the amount of second growth at picking time. Varietal differences have also been found in the height at which fruit sets on the plant.

There is no question in my mind about cotton breeders adjusting the cotton plant to better fit machines. It will take time to do it, however. And, in the process engineers will need to further adjust their machines to meet the breeders part way.

We have indications, too, that it may be possible to modify the growth habits of cotton through the use of chemicals. Preliminary results with growth regulating chemicals suggest the possibility of controlling cotton fruiting and changing the plant growth processes. Promising possibilities for regulating fruiting behavior have been found with chemicals such as Maleic Hydrazied and relatives of 2,4-D. While no practical procedures for their use have yet been worked out, these possibilities should not be overlooked.

Next, let's look at the problem and progress in cotton planting. Here, the problems evolve around two basic questions. What is a stand of cotton? And, how can an *even* stand be assured?

The inter-related problems of mechanization have completely reopened the question of what a cotton stand should be. It is becoming apparent that heavier stands are desirable for mechanization. Numerous studies have demonstrated that crowding may force the bolls to develop higher on the plant and produce more upright plants. In California it has been found that, with plants spaced at 12 inches in the row, the first bolls formed at the two inch level. Increasing the stand and cutting the spacing to 4 inches in the row forced the first bolls up to 6 inches above the ground.

Experiments in Arizona indicate that short staple cottons give highest average yields where plants are spaced only two inches apart in the row. In Arkansas, too, it was found that drilled upland cotton matured earlier and evener—and yielded more—when the cotton plants were crowded. A stand of 62,000 plants per acre matured earlier and yielded more than thinner stands. In regional seed treatment tests conducted at 8 locations, the highest yields were generally associated with heavy, more uniform stands.

The practice of close spacing, however, means denser vegetation which makes for poorer penetration of sunlight, insecticides, and defoliants.

The most pressing question on planting, of course, has to do with planting to a final stand. After two centuries of growing cotton in this country, most planting procedures are still based on the principle of planting too much seed and later chopping out the extra seedlings. So far, the production of no crop has been completely mechanized without first being planted to a final stand. I doubt that cotton will be an exception.

The problem is centered around the fuzzy nature of the cotton seed. It is extremely difficult to accurately control the planting of fuzzy seed. Several methods of seed delinting have been worked out, but there is still question as to which one is best. Furthermore, removing the fuzz from cotton seed can introduce new problems. Delinted seed may be more susceptible to diseases when unfavorable weather conditions prevail after planting. Usually it germinates more uniformly than fuzzy seed. Under adverse weather conditions a farmer may get a poorer stand from delinted seed than from fuzzy seed.

Seed viability, too, takes on greater importance in precision planting. High germination is essential to getting an even stand.

So far we don't know just what kind of seedbed is best for cotton. Increased knowledge of soil tilth and other conditions favorable to seed germination and plant growth indicate that, for some soils at least, much of the labor used in seedbed preparation is not only unnecessary but actually decreases cotton yields. In some experiments better yields have been obtained from a cloddy seedbed than from a well prepared one.

We have indications, too, that many farmers plant cotton too early—while the ground is too cold. Some agronomists are recommending that farmers who insist on planting early do so the first time with empty seed boxes. The day may not be too far away when cotton growers use a soil thermometer to determine planting dates. Using a thermometer to determine soil temperature before planting foundation seed in California this year paid off in better stands and more seedling vigor.

Next, let's look at fertilization. There probably are fewer difficult problems with fertilization than with any of the other agronomic aspects of cotton mechanization. The most important progress with cotton fertilization is represented by advances in fertilizer placement and the use of anhydrous ammonia as a source of fertilizer nitrogen.

Fertilizer placement studies have established the fact that seed germination can be improved and yields increased when fertilizer is placed in a band 2 inches below and 2 inches to one side of the seed.

Use of this new knowledge has been somewhat limited in farm practice because light one-row walking type machines are not well suited to fertilizer placement attachments. Fertilizer attachments are better adapted to tractor drawn equipment. Here is a clear cut example of improved agronomic inforation that cannot be fully cashed in on until complete mechanization is accomplished.

Widespread use of anhydrous ammonia in cotton production has helped materially in reducing the cost of fertilizer nitrogen in the central part of the Cotton Belt. For the most part, though, this advantage has been restricted to larger cotton operations.

More nitrogen could be used to good advantage in cotton growing generally —especially in the Delta and in irrigated areas of the West. In terms of mechanization, however, nitrogen applications should be gauged to the actual needs of the cotton crop and applied so as to be consumed by the time the crop is mature. Nitrogen will delay maturity. If it is used in excess, or too late in the season, nitrogen can produce excess vegetation, thereby adding to the harvest problem. Avoiding excess foliage is doubly important when the crop is to be defoliated.

Such problems are relatively easy to cope with. The most difficult fertilizer problem we face is that of combining its application with other operations to cut down on costs. This problem will become of increasing importance as band applications of pre-emergence herbicides are perfected. If a chemical is to be put down in a band over the seed, it must become a part of the planting operation. Since fertilizer placement is also related to the location of the seed, it is essential that planting, fertilizing, and per-emergence weed control all be combined into one operation.

Now, what about weed control? As I said at the beginning, the lack of adequate measures for controlling weeds and grass in cotton is the one most difficult barrier to complete cotton mechanization. For the Belt as a whole, cotton production still requires an average of about 100 man-hours of labor per acre. When we realize that about half of this labor is needed for hand hoeing, the importance of mechanizing weed control falls into sharp focus.

Encouraging progress is being made along several lines, but there is still a multitude of problems to be solved. The most sensational progress has been in the field of chemical weed control. In some parts of the Cotton Belt excellent experimental results have been obtained in controlling weeds in-the-row by using pre-emergence applications of dinitro compounds followed by post-emergence applications of herbicidal oil. In one Mississippi test last year the combination of per-emergence and post-emergence applications of herbicidal oil gave effective in-the-row weed control at a cost of $6.55 per acre compared to $14 per acre for hoeing.

Hill dropping of cotton seed is probably important to the success of the pre-emergence chemical treatment. When hill dropped, the seedlings come up in a bunch with enough force to actually push the soil away from the young plants, thus preventing damage from the herbicide. Post-emergence sprays need to be so directed that the herbicidal oil cannot hit cotton plants above the seed leaves.

In the Delta region chemical weed control is already beyond the experimental stage. It is estimated that in Mississippi this year between 75 and 100 thousand acres of cotton were given pre-emergence spray applications of dinitro compounds. Growers generally have reported satisfaction with their results. They found the pre-emergence application effective in controlling early weeds at less cost than hand hoeing. Pre-emergence weed control is working under a wider variety of soil conditions, but seems a little more dependable on the heavier soils. The chances for failure are greater on sandy soils and under upland conditions.

Post-emergence weed control is not quite so far along. We still have a lot to learn about controlling weeds and grass after cotton is up. Herbicidal oils are now being used successfully on many Delta farms where the size of operation justifies the use of the necessary machinery and skilled operators. For the smaller cotton growers, however,

especially in hilly areas, there are still many difficulties involved in using post-emergence herbicidal oils. For one thing, there is serious need for new and better methods of directional spraying.

While flame cultivation does a good job under certain conditions, it cannot be used Belt-wide. Even where it is adapted, costs are high. The development of the rotary hoe has contributed much, but is hardly the complete answer to in-the-row weed control. Generally, I believe, we need better combinations of chemical and mechanical equipment using directed sprays and protective shields.

The problem is most pressing in upland and irrigated areas. Little success has been obtained with chemical weed control in irrigated areas. Here the growth of weeds, especially grasses late in the growing season, is a serious inhibitor to a clean and efficient mechanical harvest. The use of fender guards and late cultivation following the last irrigation offers a possibility for late grass control in the far-West.

The entire weed problem in cotton production needs much more intensive research—clear across the Belt—if we are to get the hoe hands out of cotton fields. The range of herbicides now available is far too narrow to meet the great variety of growing conditions in the Cotton Belt. There are good possibilities, though, for widening that range. This year, for example, several new pre-emergence herbicides appear promising in the Southwest and under irrigation. They provide a wider margin of safety under varying moisture conditions.

Weed investigators may need the help of plant breeders, too. Can the cotton plant be adapted to directional spraying? Can resistance to certain types of chemicals be developed? In the future cotton breeders may need to give more attention to problems of this nature.

While there are still a multitude of problems with weed control in cotton, we have every reason to be optimistic. The whole field of chemical weed control is very very young. Its practical application has come about largely during the past five years. Chemicals are currently being applied for weed control on 25 to 30 million acres of crop land—largely corn, small grain, and rice—whereas five years ago, in 1946, they were not used at all.

Such sensational progress with other crops, and the promising leads we have on cotton, give us just cause for being optimistic about the future of chemical weed control with cotton.

Mechanization has also opened up new questions in the field of insect and disease control. Insects and diseases that cause dead plants certainly complicate the trash problem. Furthermore, mechanization complicates the control problem. Hoe hands can chop out weak and damaged plants. We can't expect machines to possess that quality of judgment. More effective insect and disease control measures may prove as important to satisfactory harvesting as any aspect of the job.

The need for early maturity has focused new attention on early insect control. Retaining the first bolls that develop helps to distribute the bolls more evenly on the cotton plant, and promotes early maturity. The question of early insect control is still controversial, but there is ample evidence to show that it can be effective. The questions involved fall largely into the field of economics.

Breeding studies on insect resistance indicate that chemicals will continue to be the primary means of insect control in cotton production. Although insects prefer certain cotton varieties, it has been demonstrated that their taste will change as varieties change.

Entomologists are enthusiastic about new opportunities for end-of-season boll weevil control as a result of mechanization. They are finding that defoliation and early fall stalk eradication help to cut down on boll weevil carry over and hence on infestations the following year.

The most pressing *disease* problem in terms of mechanization is the control of seedling diseases. In a well-balanced rotation program seedling diseases of cotton probably contributed more to irregular stands than any other single cause. Cotton breeders, so far, have little to offer in this respect.

Important progress is being made with soil fumigants for controlling nematodes, insects, and other soil pests. Experimental evidence indicates that substantial yield increases can be realized from fumigating soil for cotton production. Some studies suggest that fusarium wilt damage is closely related to injury by nematodes. Apparently when nematodes penetrate the root of the plant, they pave the way for entrance by the wilt fungus. Fumigation, which controls but does not eradicate the nematodes, also helps control the fusarium wilt.

The problem here is the fact that fumigation is not economical at present prices. The less expensive chemical treatments cost $35 to $50 per acre. A fumigant that could be applied for $20 per acre would probably be used extensively for cotton production in California. One that could be applied for $10 an acre would be economical over most of the Cotton Belt.

Finally, let's see where we stand on defoliation. While weed control is the most difficult barrier to complete cotton mechanization, defoliation runs a close second. As machine harvesting increases, good defoliation becomes more and more important because of the trash problem. Improvements in ginning have helped, but I doubt that the trash problem can ever be fully overcome at the cotton gin. Furthermore, benefits from defoliation are not limited to mechanical picking. Defoliation also helps to prevent boll rots, retards deterioration of seed and fiber, and expedites hand picking.

Important progress is being made in the use of defoliating chemicals. For one thing, several different chemicals have been found to be effective in getting the cotton plant to drop its leaves. No longer is the entire Cotton Belt dependent solely on calcium cyanamid.

Timing has been found to be a key factor in defoliation. Physiologists have found a close relationship between the cotton plant's maturity and its response to chemical treatment. It doesn't work on immature plants. Anything that slows up maturity in the plant—weather, insect damage, or disease—will delay defoliation and prevent the treatment from being effective. Physiological studies also show that applying a defoliant before the bolls are fully matured reduces the oil content and viability of the seed and impairs the spinning value of the fiber. It has been well established that generally cotton bolls should be at least a month old before a defoliant is applied.

Still, there are many problems with cotton defoliation yet to be solved. Highly complex physiological processes are involved in inducing defoliation under varying environmental conditions. So far, we don't have completely satisfactory materials for all arid and semi-arid conditions. Calcium cyanamid does a good job in humid areas where dew is common. None of the defoliants so far discovered, however, are fully effective for all the weather conditions encountered in the absence of dew. The current trend is toward the development of specialty defoliants—materials that are effective during different stages of plant maturity and under a variety of weather conditions.

Also, we still lack a ground spray rig

that will handle defoliants satisfactorily on rank cotton. While high-pressure high-volume spray machines might do the job, the cost of application would be too high. We need to work out inexpensive defoliating techniques. There were many instances this year where cotton growers used up their available capital on weed and insect control and didn't have the cash left for defoliation.

Using airplanes for applying defoliants and pesticides deserves more intensive study. With airplane applications, a large area can be covered in a short time while conditions are best. We need better equipment to use with airplanes to reduce costs and increase the effectiveness of air applications.

The nature of defoliating chemicals is also a problem, especially during defense mobilization. Every defoliant so far developed is keyed to such critical materials as nitrogen, chlorine, sulfur, and phenol. The availability of these critical materials will have an important influence on the rate of expansion of cotton defoliation in the immediate future.

If, through mechanization, cotton growers can dispose of their hand labor, other crops used in rotation with cotton will also need to be mechanized.

The main point I want to make is this: There is a great complexity of agronomic problems that must be solved before cotton production can be completely mechanized.

It is my considered opinion that since we have progressed as far as we have with mechanical picking now is the time to concentrate more intensive study on the agronomic phases of cotton mechanization. In that manner, I believe complete cotton mechanization will be brought about more rapidly. To do this will call for the closest of teamwork between crop scientists and engineers—and among federal agencies, state institutions, and private concerns. Where we have the best teamwork today we are making the most progress.

Here in the United States we have a combination of soils, climate, and skills for cotton production unequaled elsewhere in the world. If cotton production is given sufficient scientific study, there is no doubt in my mind about the future of the cotton industry.

Integrating Mechanization

(Continued from Page 68)

with bacteria was speeded up by using a concrete mixer for the job. In some cases the clover was seeded on cotton land before all the crop was picked, or at the same time mechanical pickers were still in the field. This practice reduces root rot. One experimental field on the Greenville, Texas station has had cotton planted continuously for 30 years. Nearly all the cotton in this field dies from root rot each year.

However, when hubam clover is used as a soil building crop, the disease is controlled and cotton does not die, but produces high yields. Results of planting hubam clover can be noticed the first year and a green row of cotton can be seen on land where formerly cotton had died from root rot.

Also, on comparing the analysis of cottonseed from two samples taken from land where cotton followed clover with cotton following cotton, the results showed 1% higher oil content or 17 pounds more oil per ton of seed. Moreover, the cottonseed cake content of a ton of seed was increased 89 pounds, or from 886 pounds of cake to 975 pounds of cake from a ton of seed. This increased the value of the seed $5.22 per ton. The farmer also profited from a 210 pound increase in yield of seed cotton valued at $17.20 per acre.

Insect control has been steadily on the increase each year. In 1949 farmers applied 50,000,000 pounds of dust. In 1950 they applied 98,000,000 pounds of dust and 3,000,000 gallons of spray on 5,285,000 acres.

Early stalk destruction is being carried out with new type stalk shredders following mechanical pickers so that the green residue is turned under and a soil building crop planted immediately. Effectiveness of the early stalk destruction program was measured in 1948 in Williamson county, Texas following an intensive stalk destruction campaign in the fall of 1947. The weevil infestation remained below the danger mark in 1948, while in adjoining counties where no stalk destruction campaign was conducted weevil infestation ran high. Good machinery to do this job helped. Since the weevil infestation ran higher in these adjoining counties, the poisoning was more expensive in the 1948 crop following poor stalk destruction.

There are 250,000 cotton farms in the state and in 1950 there were 252,000 farm, row-crop tractors. The rotary hoe attachment was pushed by the Extension Service beginning in 1946. Acquainting a few farmers in each community with the adjustment and operation of the rotary hoe speeded up its adoption, and in 1950 it was in common use in 97 counties. On close examination of cotton following the rotary hoe, farmers found that it broke the crust around the small cotton and exposed the young grass and weed seedlings to the drying action of the sun and wind. The drying action of the sun and wind on the exposed, young, tender grass and weed seedlings prevents their growth and has resulted in cutting the hoe bill approximately 65%.

On the H. D. Madsen farm in Wharton county on heavy Lake Charles soil, 160 acres of cotton were cultivated with a 4-row, rotary hoe-equipped tractor in less than 2½ days. This cotton had 13 inches of rain during the month of April. Using the rotary hoe resulted in no hoe bill and permitted cultivating in half the usual time.

Farmers are finding it profitable to speed up their 4-row tractors and by replacing the cultivator fenders with rotary hoe attachments, they can cover more acreage more effectively with the same equipment.

Mechanical choppers are on the increase and there are at least six good makes on the market and now in use. This work looks good in the field when the machine is properly adjusted and operated.

Crossplowing is also saving money. Experiments show that sweeps can be used to plow out 15 inch widths and leave 5 inch hills, by setting the sweeps on 20" centers. Also by placing sweeps in front of the tractor wheels, the bumping action from crossing rows is eliminated and the plowing can be done in second gear at full throttle. This speed lowers the cost of operation.

One operator has gone so far as to use a front mounted cotton chopper, a rotary hoe and then chop and cultivate cotton mechanically while listening to his tractor radio.

Passing on to harvesting cotton mechanically, the breeders have developed two types of cotton (storm resistant and normal boll) for the two types of machines (the stripper and the spindle picker).

In 1948 there were 92 spindle pickers operating in 23 counties and 4,223 cotton stripper harvesters operating in 71 counties. This shapes up into a rather definite pattern of mechanical pickers in South Texas and the Gulf Coast while the stripper is well adapted to the High and Rolling Plains.

In 1949 these increased to 370 spindle pickers in 70 counties and 7,003 strippers in 84 counties.

With a smaller crop in 1950 we had 293 spindle pickers in 63 counties and 7,138 strippers in 72 counties. Then for 1951, farmers indicated they would buy 582 new additional pickers in 74 counties and 7,500 more strippers in 91 counties.

Cotton variety recommendations have been made based on yield in variety tests, fiber properties, boll and plant characters, adaption to local methods of harvesting, seed supply and preference by farmers. A new joint Texas Experiment Station-Extension bulletin on variety performance is now being printed.

In Nueces county and 5 other counties, the county agent has assisted in conducting variety tests designed and supervised by the Experiment Station. In Nueces county the farmers changed from planting 22 varieties in the late '20s and early '30s to one or two varieties at present and increased their yield from one-third to ¾ bale per acre. Improved varieties, however, are not the only reason for this increase. Tractor farming played its part. The first successful row crop tractor was introduced in the Corpus Christi area in 1926. After that, mechanization made real progress when farmers found tractors much more efficient than farming with teams. Farmers in the lower Rio Grande Valley are also interested in performance of cotton varieties and their bearing on mechanical harvesting. In Hidalgo county the yield has increased from one-third bale to over 400 pounds lint average during the last two decades.

Let's take a look at some of the two types of cotton harvesting in the two general areas of the state. In 1949 Mr. Hardin in Hockley county harvested 400 bales from 400 acres of cotton with his stripper. He did a clean job, then ricked or windrowed the cotton in the field in 50-bale ricks because of crowded conditions at the gin.

Loading the cotton on trucks and trailers meant increased labor and increased cost of handling and slowed down the operation. However, this young GI farmer showed typical self-reliant ingenuity and quickly solved the problem. He mounted a gin fan on the front of his tractor and for $200 rigged up a machine which would load 8 bales of cotton on a truck in 1½ hours, hauled the cotton to a less crowded gin and sold it for $5 more per bale. Again, the engineer came in handy. The closed elbow on the suction pipe on the loader did not provide for the air to escape and the air blew cotton back on the ground when the truck was nearly loaded. However, this condition was quickly solved by placing screen wire on the elbow, allowing the air to escape

and the cotton to drop into the truck. As the result of this farmer's idea, the Extension Service made blueprints of the machine available to other farmers and manufacturers. This procedure has been repeated and at present there are some 57 blueprints of other labor saving devices available to Texas farmers.

Changing to the normal boll type for the spindle picker, the Experiment Station has obtained excellent defoliation results where defoliants were properly applied under the right conditions. Cotton yielding 1¾ bales per acre in 1949 was defoliated by airplane with nearly 100% efficiency.

Under different conditions in 1950 spray defoliation also was successful. At the Brazos River laboratory Deltapine cotton producing 1,398 pounds of lint per acre was defoliated twice and picked with a spindle picker. Still later in the year, after rain, a fair job of removing second growth was done and 91% of the cotton was picked with the college-owned picker.

Farms in Texas have purchased all makes of spindle pickers and operated them successfully.

The Mooring plantation near Bryan, Texas purchased six, two-row spindle pickers in 1950 and they try to pick the crop each year by October 15. Following cotton harvesting land is ready for applying phosphate and planting vetch.

On the High Plains, defoliation by frost puts the fields of storm-resistant cotton in good condition for machine stripper harvesting. Where row width of the cotton matches the row width of the stripper, careful operators obtain almost 100% efficiency in mechanical stripping.

It is possible that the bristle or brush roller for the stripper will prove to be a practical improvement.

Mechanization on the irrigated farm in Texas is very important. Irrigation involves specialized equipment, different from dry land farming, where water on fertile soil will double the yield.

There are approximately 1,600,000 acres of cotton under irrigation in Texas this year on 30,000 farms. Normally about 10% of the Texas cotton acreage is irrigated and this acreage accounts for one-fourth of the production.

The adoption of increased efficiency in cotton farming practices has been responsible for the 41% average gain in the per-acre production of cotton in Texas during the past 10 years.

Materials Available

(Continued from Page 24)

defense-supporting activities should be satisfied, after similar screening, to the maximum extent consistent with the limited amounts of steel, copper, and aluminum available for distribution, and consistent with securing a proper balance between construction and equipment, between components and end products, and between the production of energy resources and the demand for these resources; and (3) production of consumers' goods should not be subject to sudden, drastic cutback, because of the great danger of creating pools of unemployed labor and contributing to inflationary forces; but it should be curtailed to the extent necessary to free critical materials for more urgent defense uses.

In line with these three policies, we make the necessary cut-backs to bring requirements in balance. And I need not add that in striking this balance we have to make some very difficult decisions. All of the programs under consideration are important. Under other circumstances, all would be regarded as "essential." But when there just is not enough material to go around, something has to give. I might add that there are cut-backs for all programs. Even the estimates from the Defense Department and the Atomic Energy Commission are subject to adjustment. Their projects are put at the top of the list, and we try of course to give them 100 percent of their real needs as long as the materials requested will be used—actually put into fabrication—during the production period in question, and not held indefinitely in inventory.

Last July we inaugurated a Controlled Materials Plan which became fully operative for the fourth quarter of this year. Rules and procedures are established under CMP for putting allocation decisions into effect. The basic decisions and allocations are made by the Office of Program and Requirements, as I have indicated, but CMP mechanisms are used to carry out quantitative and time-phased controls over the actual distribution of allocated materials. CMP is a tested procedure, based on the experience of the War Production Board in World War II, and we believe that it is the most effective method which can be developed to insure distribution in line with the needs which are determined to be most vital.

We have just finished our "balance" for the first quarter of 1952, and I think the result will point up the seriousness of the allocation problem. When the preliminary requests from claimant agencies were added up for that quarter, we found that the demand for carbon steel was 156 percent of the supply; for structural shapes, 205 percent of supply; for copper, brass and aluminum, 170 to 180 percent of the available supply. As I have indicated, the first quarter of next year—with defense production in full swing—will be the start of a very critical period.

I said earlier that we would have to get along for a while with somewhat less machinery and equipment than would be desirable to push expanded mechanization in the cotton industry. This is true, but I want to make it clear that no action is contemplated which would in any way force an abandonment of this important program. There will have to be a "slowing down"—some deferring of programs—but we believe that this will be only a temporary situation. Barring an all-out shooting war, the materials situation should improve considerably during the second half of next year.

For the first quarter of 1952, we are able to provide enough steel, copper and aluminum—the three basic controlled materials—to support the agricultural equipment program at a relatively high level of production. But the amounts of these critical materials fall far short of what we would like to make available.

I can give a better idea of the prospects by summarizing the general situation for a few of the most important and critical materials.

Carbon steel is a key item in determining the production level for agricultural equipment. For the fourth quarter of 1951, we allocated about 533,500 tons of carbon steel directly for the production of agricultural equipment. For the next quarter—the first quarter of 1952—we have authorized the use of 508,000 tons of carbon steel for this type of construction. In addition to these quantities, users of small amounts of materials will be permitted, on application to National Production Authority field offices, to use somewhere in the neighborhood of 30,000 tons.

These tonnages are less than the quantities asked for by the Department of Agriculture. But I think there is general agreement that the amount allocated is enough to meet the essential needs—enough to support the Nation's food and fiber program without serious curtailment. As a matter of fact, the

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production levels authorized for the next quarter are only moderately below the levels for 1949. The significance of this comparison is that materials used in the last half of 1949 were sold as equipment early in 1950—and this period set a high mark in agricultural equipment sales.

The situation for carbon steel—so vital to the farm machinery program—looks better on ahead. Increased production in the latter part of 1952 should result in a marked easing of supplies. Structural steel, very tight now, should also be more freely available by the end of next year. The large demands of the present industrial expansion program should then be largely behind us.

Aluminum supplies will continue to be very short for several months, when measured against the great defense demand. But by the third quarter of 1952 the aluminum expansion program should begin bearing fruit, and from then on increased supplies of this critical metal should be available for all uses. The extent of the increase for industrial and civilian uses will of course depend on the amount the military program will still demand.

The copper production outlook is generally dark. It is perhaps the most serious limiting factor in the achievement of defense goals. The plain fact is that we are now a "have not" country so far as copper is concerned, and there is nothing in the immediate future to change that outlook materially. Imports of refined copper have fallen off, and there has been a reduction in domestic production.

Against the background of this supply analysis for critical metals, we reach the inevitable conclusion that the general situation for farm machinery production during the early part of next year will be marked by some limitations —some deferring of programs and schedules. In relative terms, the situation will not be too bad, but we obviously will not be able to provide the level of production we all desire.

Looking further ahead—to late 1952 and beyond—we are confident that the situation for farm machinery production will improve. This outlook of course is based on the avoidance of large-scale armed conflict.

I know that you in the cotton industry will recognize and accept the situation as necessary. I know that you will do everything possible to adjust your plans and operations to meet the situation, continuing your maximum contribution to the over-all defense effort.

One very important thing you can do is to take all practicable possible steps to conserve the equipment now available, and to see that it is put to the most efficient possible use. The Defense Production Administration is prepared to support a very active program for providing the materials needed for conserving existing equipment, for making repairs, and for providing regular servicing for the machinery on hand. By cooperating fully in this conservation program, you in the industry can make a vital contribution to the job of bridging the gap until the materials supply is increased.

Another important contribution you can make to the defense production program is to cooperate in the Iron and Steel Scrap Salvage program. All leaders of industry are being asked to join in the effort to keep all available scrap moving to the mills and foundries through the regular scrap dealer channels.

The scrap situation is becoming increasingly serious as winter approaches. Some steel mills are now operating on inventories running from a half day to a week. At this time of year, they should have a reserve of from six to eight weeks. We must bring in an absolute minimum of three million tons a month for the next several months. We depend upon industry and the farms as our principle source of supply. We need every pound of production scrap. We need all wornout machinery and obsolete parts. You can perform a great service, at this time, to industry and the public by lending full support to this drive.

I want to emphasize a basic fact in the whole situation today which is known to all of us, but which I am sure bears repeating. That fact is simply that we are undertaking a vast mobilization effort because we are convinced that our nation is in danger. Surveying the world scene, we know that we must build our military strength—and quickly —to a point where it will be a solid defense against the threat of aggression. In doing this, we are building for the defense of the free world, and for peace.

At the same time, we must also expand our industrial capacity—our ability to produce not only guns and tanks and ships and planes, but also the civilian goods which will enable us to maintain our democratic traditions and our high standards of living.

This is a big order, but it is a "must" order. It calls for the best that we can all give to the job. It involves some adjustments and some temporary sacrifices, but the stakes are so high that I am confident that we will all make them willingly. No other course is possible in these times of real peril.

In conclusion, I want to emphasize the assurance that the Defense Production Administration is fully aware of the important contribution that high-level cotton production—and all other essential agricultural production—can make to the nation's defense and well-being. Within the limits imposed by other urgent requirements for critical materials, and the short supplies available to meet all needs, we intend to give all possible support to agricultural programs. This applies not only to machinery, including the equipment needed for cotton mechanization, but also to the basic supplies needed for fertilizers, pesticides, and all the other materials without which adequate agricultural production, processing and distribution could not be maintained.

I think we have developed an effective organization and procedures for bringing together and appraising all requirements, for balancing requirements with supplies, and for controlling the distribution of materials in accordance with the pattern which will contribute most to the defense effort.

We in the Defense Production Administration feel that the limitations and controls which are necessary now are merely temporary expedients. We do not think it will be necessary to continue them indefinitely; we do not want to continue them one hour beyond their actual need. It may well be that some limitations can be relaxed by the end of 1952. And as the industrial expansion program moves toward completion, we are confident that the emergency restrictions can be relaxed more and more—toward the day when they will no longer be needed at all.

That is the goal. With your help, we can reach it more surely and more quickly.

First Panel Discussion

(Continued from Page 28)

in cotton was used by farmers of the Mississippi Delta in 1951. While the techniques and the machines for application of these materials have not yet been perfected, they can and will be applied to thousands of acres in 1952. For the first time, post-emergence applicators will be available in quantity in 1952. Several state experiment stations are furnishing the farmers with tentative recommendations so that those who care to use these new chemicals for weed control may have at their disposal the very latest in research findings.

As the use of flame and chemicals increases, the need for better mechanical cultivation becomes more apparent. Cultivators will need re-designing for smoothness and clearance. Adjustments must allow a more positive setting of the implement and permit the precision operation which is so necessary. Sweeps designed for the higher speeded modern tractor will be needed and are being furnished. If they utilize the new weed control measures, farmers must do a better job of farming from field layout and water control on through the various operations up to harvest time. Here again we find a need for supervision and management of the highest order.

Fertilizer application, always a timely subject, now becomes more important. Placement must be considered not only from the standpoint of stand and yield but also as it affects weed and grass control. Deeper placement of the fertilizer materials not only gives better early weed control with no lessening effect on yields, but oftentimes may even increase yields. Industry, taking the recommendations of the fertilizer research group, has made available to the farmers equipment which allows the fertilizer to be properly applied. Improvements in the machines are still being made and with better chemical formulations it is only reasonable to expect better and better application equipment.

As the newer techniques come more and more into general use, better all-round farming is imperative. Mechanized farming is precision farming, and precision farming cannot be attained without good stands of cotton and effective weed control, to say nothing of fertilization and insect control.

One of the first requirements, if this type of farming is to be attained, is the destruction of the old stalks and other crop residue. Modern stalk shredders are greatly assisting in this phase but improvements must be made to attain even better destruction of vegetation. Old stalks and trash make planting and cultivating difficult and may cause skippy stands due to clogging of the planters and cultivators.

There is no one phase of cotton production that can be singled out as being the most important. All phases are closely related and must receive the attention due them if the best results are to be obtained. When this is done we have good farming—and when we have good

farming we are operating profitably. Mechanized farming is good farming, for the farmer has at his command the most modern and very latest in equipment, materials and techniques.

E. R. Holekamp

Assistant Agricultural Engineer, Arizona Agricultural Experiment Station, Tucson.

1. How are the cultural machines used to meet the needs of irrigation practices in Arizona's cotton?

In the production of Arizona's irrigated cotton, farmers are constantly faced with the problem of water penetration. In clay and clay loam soils, the farmers encounter water penetration difficulties from the pre-irrigation before planting to the final irrigation in September. To obtain the necessary water penetration in tight soils for the pre-irrigation, farmers occasionally plow 20 to 30 inches deep, thus providing increased water absorption capacity. Another reason for occasional deep plowing is to turn up a stratum of soil with more favorable texture for irrigation. Another method used extensively to obtain water penetration in the pre-irrigation is to use a subsoiler or chisel to rip soil to depths of 20 or more inches.

In cultivation, the farmer constantly keeps his irrigation program in mind. For this, the first cultivation is timed for weed control and to open a furrow for irrigation. Generally, one cultivation is provided between each irrigation, always moving the soil towards the plant to cover weeds and to provide an open furrow for irrigation. Too frequent cultivations are not desirable on heavier soils because of compaction under the wheels, resulting in a decrease in water penetration. Farmers comment that it takes longer for water to flow down every fourth row not compacted than the three compacted rows when using four-row cultivators.

2. What are some particular weed control problems in Arizona?

Weed control problems in Arizona's irrigated cotton include effective control of weeds in the early season and after the lay-by time in mid-July. At present early season weed control is done entirely by mechanical cultivation and hand hoeing. Flame cultivation has not gained favor for several reasons. The cost of the LP gas is high compared to the cost in other cotton growing regions. The control of Johnson grass is poor and recent developments of the flat burners have not been introduced or fully tried.

Late season cultivation is greatly hampered by tall cotton. At times in mid-July, cotton is over four feet tall, requiring the lay-by of cotton at the time summer rains come and encourage the rapid growth of weeds, particularly pigweed and water grass. Here, shielded high clearance tractor cultivators may be a possible aid in late season weed control.

3. What are difficulties encountered with cotton planters that are presently on the market?

The present trend of four-row cotton planters is towards a rear mounting on the tractors. This type of mounting is undesirable from the standpoint of the tractor operator in that it is difficult to see if the units are functioning properly or if the seed can is running empty. Also, frequently in lowering the planter at the beginning of rows the seed furrow opener is dropped into the moist soil of the distribution ditch, plugging the seed boot with moist soil. This results in the skipped rows because of the operator's inability to observe the openers from the driver's seat. Forward mounting of the planters allows the operator to observe the operation more closely, and thereby avoid the loss of time and waste of seed to replant a skipped row.

A. S. Milikien

Collin County Agent, McKinney, Texas.

In almost every case, necessity has been the mother of invention in the development of agricultural machinery. Lack of harvesting labor caused the farmers in West Texas to use picket fence for harvesting cotton as early as 1914. In 1926 another scarcity of harvesting labor brought out many home-made and blacksmith-made sleds and strippers for harvesting cotton. Since that time experiment stations and machinery manufacturers have made rapid strides in the development of harvesting machinery, thus some might say that harvesting machinery has developed more rapidly than cultural machinery.

In my opinion the most revolutionary development yet experienced in cultural machinery was the introduction of the one row walking cultivator which replaced the double shovel by cutting the time of cultivation in half and increasing the efficiency of the operation. Up until the advent of the single-row shovel cultivator which took place around the turn of the century, any development of cultural machinery had increased the efficiency of the operation as well as reduced the amount of time necessary to perform the task. As the two-row and four-row equipment was introduced the time required to perform the task of cultivating was reduced but some of the efficiency was sacrificed, thus requiring, in many instances, additional hand hoeing.

Around the mid-twenties the row crop tractor came on the scene, which was really the beginning of the present era of cotton mechanization, as tractor mounted middlebreakers, planters and cultivators were rapidly developed.

Then came the rotary hoe which has been more widely and completely adopted by cotton producers throughout the entire Cotton Belt than any piece of cultural machinery since the shovel cultivator. In the state of Texas the rotary hoe grew in two years from the use of a scattered few in 1948 to more than 10,000 used in 1950, and indications are that this figure has perhaps doubled in 1951.

Cultural practices in cotton production actually begin immediately following harvest with what we in the highly populated cotton insect area call "early stalk destruction." Roller type and shredder type machines have been developed for cutting stalks. Either type will do a satisfactory job, but the expense of some of these machines cannot be justified on the small or even average cotton farm. Following stalk destruction comes land breaking, and machinery for this purpose is generally satisfactory. The next operation, fertilizer application, could stand considerable improvement in the development of machines for the application of fertilizer during land preparation in many areas. Fertilizer distributors better adapted to putting the material into the ground are badly needed. Farmers have had to resort to their own ingenuity in fertilizer application. Planting equipment is satisfactory for drilling and hill dropping according to the choice of the individual operator. Many attempts have been made to develop machines for the next operation, that of cultivation or weeding. As stated above the rotary hoe has perhaps gone further, especially in low rainfall areas, toward the solution of this problem than anything else. The flame cultivator has served as a specialized tool for specific conditions. The va-

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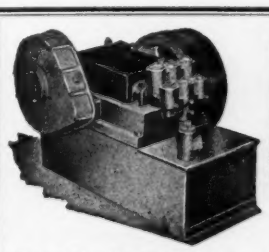

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rious types of mechanical choppers have also been adapted to certain conditions but have not been widely used in many areas. There has been a rapid transition in the past two years from dust to liquid in insecticides. Machinery for applying either dust or spray materials is generally satisfactory.

As the agricultural labor situation becomes more acute from season to season, there is no doubt that the mechanism for weeding will be perfected. By the same token, as the need for fertilizer placement is more widely appreciated, this problem will also be remedied.

Joe H. Scott, Jr.

Dunklin County Agent, Kennett, Mo.

In getting land ready for cotton in the lowland area or Delta area of Southeast Missouri, the first operation we go through is to cut the stalks. The "roll-over" type stalk cutter is the most prevalent and is a good tool. But, if we had another tool similar to the stalk shredder to handle crop residue we could do a better job of preparing a good seed bed.

Due to our heavy rain and lack of drainage, the next operation is to disk and then throw up a bed with a middle buster. Another reason is that it is easier to do. The earlier we do this and the longer we let the bed settle the better it is, but usually wet weather keeps us from doing this early. We need to break deeper with some tool, but an "M" tractor can only pull two 12-inch breaking plows and this is too slow a job on our clay soils. (On our sandy ridge this is a different proposition.) So we need some tool that can break deeper and faster than we do now. Another thing is that if we had some practical method of leveling our land or draining it we could probably plant on the level, which I think would give us higher yields. The land-leveling equipment we have now is too expensive and doesn't cover enough land. Two hundred acres is about all we can do during the year with equipment costing $15,000 or more.

The next thing we do is to "knock down the seed bed" with a disk or similar tool, then harrow or use a cultipacker, which is a good tool. Then we plant.

We also need a planter than can precision plant so we can check cotton or can space it so as to save seed and use pre-emergence chemical weed control or cross-cultivate.

We also need a fertilizer attachment on a planter that will place fertilizer two inches to the side and two inches below the seed as we plant.

The next tool which we use is a rotary hoe to break crust over cotton plants if needed. It is used on cotton plants until they are six to eight inches high. This is a very practical tool and one of the best and most useful that we have.

The next tractor implement we use is a cultivator, usually with four-inch shovel on the front. The "stove pipe" shield used at this time is very practical and can throw soil up around cotton without covering it; and regular cultivating implements are all right. We do very little flame cultivation due to having our cotton on a ridge or bed. But I think flame cultivation is practical and can be used to good advantage where land is prepared for it.

We use mechanical cotton pickers, and they are all right, but can only operate about 28 to 30 days due to wet soil. If we had a lighter machine they could probably operate longer.

A machine we need badly is a multi-row planter that would seed winter vetch on the side of the row. We now have to make or rig up our own seeders. Seeding vetch by plane is successful some years but it is a hit-or-miss proposition.

We use anhydrous ammonia to a great extent. The applicators are okay but could have a better covering device and harder knives. Some wear out on 70 acres of land.

On the whole, our cotton cultural machinery is very practical and the machinery people have done a good job in providing us with the tools we need. There are a few tools we need, and if they are being made, they should be introduced to our section of the country.

I might say almost all of our implements are tractor drawn. Very few horses and mules are used.

J. L. Hipple

Manager of Engineering, International Harvester Company, Chicago, Ill.

Seed-bed preparation has changed very little, basically, since the advent of tractor farming. The moldboard plow, disk plow, middle buster and disk harrow are still the basic tools for seed-bed preparation. Soil and climatic conditions determine which tool is used for the original ground-breaking.

The basic seed-planting tools of the animal-power days are still being used and, in the transition to tractor-drawn or -mounted tools, retained their basic identity. They vary in their ground-working elements. The sword- or runner-type is still the most widely used. The blackland sweep and the lister planters are used where soil and climatic conditions dictate their use.

The seed-metering elements have received the most attention. There are two types of seed-metering means used: the picker wheel and the horizontal revolving plate. Both are effective and the choice by the user is a matter of preference. The selection of seed plates available for these modern planters has greatly increased to include hybrid corn and many other crops that have found favor with the cotton farmer.

The use of hill-drop devices and mechanical crop-thinners has increased. The higher-grade seeds and their cost, plus the increased cost of hand labor, has led to greater efforts to plant to a stand or thin to a stand without the use of hand labor. Present-day seeds have a higher percentage of germination, but since emergence of healthy plants is the thing that determines the ultimate plant population per acre on which crop production is based, the placement and method of placement of the seed have been given much study and attention.

Recent development of placing a narrow rubber-tread wheel directly over the seed, to press it firmly against seed furrow bottom before covering the seed, has shown surprising results in increased percentage of emergence and shortening the time between planting and emergence.

Proper placement of fertilizer has been given much attention and, while opinions vary, placement to one side and slightly below the seed on one side of the row is a generally accepted practice and most planting equipment provides means to do this.

Liquid fertilizers, such as anhydrous ammonia, are being widely used as an application to growing crops. It is a fast-operating fertilizer and does not require moisture to make it available to the plant. It is literally blown into the ground under pressure through a narrow slit formed by a chisel-type opener and is absorbed by the soil with very little loss by escape to the surface.

There is little doubt that chemical restoration of soil fertility is in its infancy, and future research will find more effective means to accomplish this important phase of farm production.

More study and experimentation have gone into cultivating methods. Specially designed sweeps for higher-speed cultivation have been developed. Mechanical cotton picking makes it undesirable to have the dirt ridged on the row and the high-speed sweeps are designed so they will not throw dirt excessively. Pre-emergence and post-emergence spraying of oil and chemicals is being used for better weed control in the early stages of plant growth. The cost of chemical weed control will no doubt limit its use to control of weeds in the row only and in the early stages.

Industry is developing equipment for application of chemicals, both as an attachment to the cultivator or planter or as a separate unit. High-level sprayers are under development that can be used in the later stages for boll-weevil control or defoliation.

There is a need for a cultivator with more clearance, both for height and breadth of plant, and smoother design to reduce plant damage.

Cotton-stalk destruction is being studied with the objective of more complete destruction, both of the stalk and the root, to permit faster decomposition, both for soil fertility and to eliminate them as a nuisance in cultivation.

In the development of new tools for tractor farming, their operation on contour rows is not overlooked in the interest of soil conservation farming methods.

Fred D. Sawyer

Research Engineer, Dearborn Motors Corporation, Birmingham, Mich.

There are two problems which I feel are of major importance in the cultural field because of their effects on mechanical harvesting of cotton—the final phase of cotton production to be mechanized.

One of these problems, and the one I feel most urgently needs a solution, is the post lay-by control of weeds. The presence of weeds tends to greatly reduce the efficiency of all mechanical harvesters that I have seen operate. In addition to the loss of efficiency in the field, the presence of weed trash tends to lower the grade of the lint cotton. I feel that the combined value of these two losses will justify considerable expense on the part of the farmer to control the weed growth in cotton after lay-by.

There are several approaches to this problem. One of the more obvious ones would be a later lay-by. I do not feel that this will be the complete answer to the problem. If the last cultivation is delayed sufficiently to be effective and is severe enough to destroy the weeds in the center of the drill, considerable damage to the root structure could result. A more logical approach to the problem, I feel, would be the use of a herbicide or flame. Either of these should

be applied so as to be effective over an area four or five inches on each side of the center of the drill and shielded to protect the upper part of the cotton plants.

With machinery offering sufficient clearance and equipped with proper shields over wheels, either of these methods could be used at any time between lay-by and harvest, depending on the nature of the cotton plants and weed growth.

Another condition that we have found to be rather widespread and also bearing directly on the effectiveness of most mechanical harvesters is the distance between plants across the drill. This condition has been found to vary from one section to the other and is directly affected by the cultural methods practiced in the area. In the irrigated sections of the Rio Grande Valley it is not uncommon to find adjacent stalks in the drill four to six inches apart. In the southeastern section and the Delta the condition was usually better but in many fields the plants were too far out of line to allow free passage of all stalks through the three- to four-inch width of throat used on most mechanical harvesters. This condition was found to be least objectionable in the central and west Texas area.

The position of stalks across the drill at the time of harvest is not controlled by any single operation. The seed may be dropped and retained in a narrow belt, but where a large amount of soil is worked to the plants during successive cultivation the plants may be widely separated in the drill at time of harvest. Accurate control of correct practices for each operation from seed bed preparation through final cultivation will be necessary to correct this condition.

Second Panel Discussion

(Continued from Page 32)

The Far West has a problem, however, which is a reduction in grade due to machine picking. How to maintain quality of lint is one of the items which has and is being given attention in studies. Other studies pertaining to mechanical picking are cultural practices as they affect harvesting efficiency, and total yield.

Tests at the U. S. Cotton Field Station, Shafter, California, have shown that the picking efficiency with one make of picker can approach the efficiency of hand picking. Cultural practices such as leaving a high plant population per acre and ending the cultivation season with row profiles which are all uniform with the base of the plants at the crest of the ridges and wide bottom furrows aid in getting higher picker efficiencies. The higher plant populations of from 20,000 to as high as 50,000 plants per acre also produce the highest yields. On soils where plants have the tendency to grow more vegetatively the plant population per acre should be lower than where the size of plant is restricted.

Mechanical thinning is satisfactory so long as ample plant population is left for greatest yield with the plants left per acre distributed uniformly in the row and not at an interval greater than around nine inches.

It has been found that satisfactory control of summer annual weeds and grasses can be accomplished with the use of shielded cultivating equipment and flame cultivation with a minimum of hand hoeing for field clean-up where there are sufficient plants per acre to give maximum yields and which will shade the ground and inhibit the growth of weeds and grasses after cultivations end.

Herbert F. Miller

Assistant Professor, Agricultural Engineering, Texas A. & M. College, College Station.

Question: Is stripper efficiency or operation influenced by (1) crop disposal and (2) row width?

Answer: (1) Yes, stripper and picker efficiency or operation may often be affected by improper crop residue disposal. Large cotton stalks and roots which are not thoroughly chopped up may not decompose by the next harvesting season. They may be picked up by the narrow throat in some stripper machines and cause stoppages. Also, picker spindles may be prevented from picking locks of cotton if these roots and stalks are pushed in between the lower spindles and the cotton to be harvested.

(2) Row width is very important, particularly for those strippers and pickers which do not have an adjustment for row width. We believe that the best row width is 40 inches.

Question: Does plant spacing affect stripper efficiency or operation?

Answer: Yes. Thick spacing reduces plant height some, materially shortens branch limbs and helps in obtaining higher fruiting as well as promoting the possibility of the cotton maturing and opening more uniformly at the same time. An even spacing of the plants in the row is almost a necessity for stripping. Cotton hill-dropped on 12 to 16 inch centers does not seem to materially affect picking machines but even spacing is desirable. Recent tests indicate that 30,000 to 50,000 plants per acre or two to four plants per foot (depending somewhat on the area and soil conditions) are desirable for both stripping and picking.

Question: Do any of the following affect stripper and picker efficiency?

Answer: 1. Height of first fruiting node or first boll? Yes, the higher the fruit is on the plant the easier it is for picker and stripper fingers to get under all the cotton on the plant and guide it into the harvesting mechanism.

2. Boll type? Yes, the boll type or variety has a lot to do with harvesting. Stripper-type machines using iron rolls or fingers are more efficient in storm-proof cotton or storm-resistant cotton of the open-boll variety. Picker-type harvesters will not satisfactorily pick

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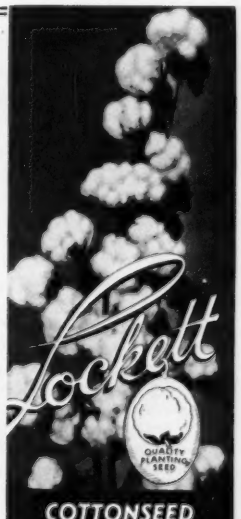


Mechanization Conference Report

Summarizing the Conference

By CLAUDE L. WELCH

CLAUDE L. WELCH is Director of the Division of Production and Marketing, National Cotton Council of America, Memphis.

PROGRESS IN THE FIELD of cotton mechanization during the past decade has been little short of phenomenal. On our Cotton Belt farms the number of tractors has increased from 345,000 to well over a million. Ten years ago we had only a few experimental cotton pickers and a handful of strippers; today we have more than 23,000 mechanical harvesters.

We have witnessed signal advances in cultural methods. We have seen the advent of the four-row planter, the flame cultivator, the mechanical chopper, the rotary hoe, improved methods of applying insecticides and defoliants, and the use of chemical weed killers. During the same decade the ginner, through the installation of improved machinery, has become increasingly capable of processing mechanically harvested cotton.

Admittedly, we are still short of our goal of maximum practical mechanization of the Cotton Belt. There still are major problems to be solved in harvesting and in thinning and weed control. And these are the two phases of the crop cycle which require the greatest amounts of man labor.

We need smaller and less costly harvesting machinery if the medium and small cotton farm operators are to mechanize. We need further refinement and improvement of current weed control practices. In fact, there is no phase of mechanization which is not subject to improvement—improvement which is a prerequisite to Beltwide mechanical cotton farming.

At the fifth annual Beltwide Cotton Mechanization Conference, we heard the representatives of all the various groups interested in mechanization progress recount their problems. The land grant college engineer, the research and development worker from the farm machinery company, the educator, the economist, the cotton producer—all gave their versions of what still is to be achieved.

Prevalent throughout the conference there was an atmosphere of optimism. Sometimes optimism was tempered by setbacks and temporary defeats with which research has met as it tackled the problems of mechanism. But on every hand there was the belief that the solution to the problem is capable of attainment.

The American cotton industry is fortunate that so many interests with such great resources at their command have placed the mechanization of cotton so high on their agenda.

Today as we taste the fruits of mechanization—partial though it may be—we are more fully conscious than ever that here is our greatest single opportunity to increase the efficiency of cotton farming and to increase the productivity of the individual cotton farm worker. And in greater efficiency and greater productivity lies the ability of cotton to make its maximum contribution to the nation and to increase the long-run prosperity of the people dependent on cotton for a livelihood.

anything but open-boll type cotton which fluffs-out well in the bur.

3. Height of plant? The present stripper-type machines operate best in small to medium height plants which pickers operate satisfactorily in medium to tall plants.

Question: What place does defoliation have in mechanical harvesting?

Answer: Defoliation is a necessity for stripper-type harvesting and is desirable for picking machines. Good defoliation increases the grade of mechanically harvested cotton. A good and sure method of defoliation would do more than any other one thing toward completely mechanizing cotton.

Question: What efficiency is generally obtained when harvesting cotton mechanically?

Answer: In the High Plains of Texas and other areas suitable for stripping, a total harvesting efficiency of from 92 to 96 percent is generally obtained from stripper-type machines in storm-proof or storm-resistant varieties of cotton. The efficiency of picking machines in a suitable variety of cotton varies considerably according to weather conditions after the cotton begins to open and prior to harvest. Total efficiencies of between 85 and 95 percent are most common.

John H. Stephens

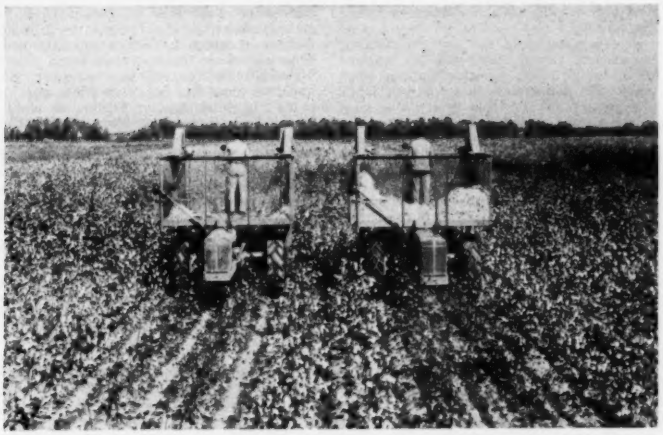
Crittenden County Agent, Marion, Ark.

Cotton is the last of our major field crops to be almost completely mechanized. From the farmer's standpoint, there are many reasons why the crop should be mechanized just as rapidly as possible. These reasons are as follows: (a) We do not have the unlimited supply of relatively cheap labor for cotton production that existed only 10 years ago; (b) cotton farmers are in a squeeze between rising labor costs and relatively stabilized cotton prices; (c) we need to mechanize so that we can compete with other fibers and with other cotton-growing countries.

It seems that the engineering aspects of mechanical cotton pickers and strippers have made rapid progress in recent years. However, in my section of the Belt it is our feeling that they still have improvements to make before they are generally accepted by producers. It is felt that in the not-too-distant future there will be developed a picker that will be practical for our area.

My great concern at the moment in connection with mechanical harvesting is getting producers to take advantage of the progress made to date and be ready to move forward in mechanical harvesting as new developments arise. In the old established areas of the Belt this is apparently a greater problem than in the newer cotton sections of the country.

I would propose, in this connection, some close teamwork between several groups in order to make the most rapid progress in taking advantage of these new cotton harvesting developments. It is going to take organization of farmers and producer groups working closely with farm machinery manufacturers in cooperation with research people and the agricultural educational forces to get



More than 3,000 mechanical pickers of various makes are being used in California alone to aid in harvesting that state's record-breaking cotton crop.

cotton producers to accept mechanical harvesting in my section.

The problems are varied and many. For example, we need more skilled machine operators on our cotton farms to make the picker perform satisfactorily. We need improvements in our ginning machinery. In many cases there is land-leveling that must be done. We need a variety of cotton more adaptable to machine picking. Economic studies to show the soundness of mechanized cotton production are needed.

These typical problems show why it is going to take the combined forces of all the groups mentioned above to get the job done. One group may be in better position to do some jobs than others, and there is plenty to be done to keep them all busy for a long time.

My suggestion is that these mechanization conferences should be localized, maybe one to the state or within a particular area of the state, bringing together all forces within the particular area but doing a more intensive job than is being accomplished at the Belt-wide conference.

Merrill W. Roscoe

Assistant Chief Engineer, John Deere Spreader Works, East Moline, Ill.

The general acceptance of mechanical stripping as the method of harvesting cotton in the High Plains area of Texas and western Oklahoma presented many problems that affected the harvesting efficiency of the machines. Many of them have been overcome. Others still remain.

Cultural practices that involved crop disposal, planting methods, cultivation, row spacing and ginning methods are some of those that have been overcome. The farmers in these areas, having no reservoir of common labor and with very little tradition or adjustment in thinking to overcome, changed their practices in any way that seemed plausible and would be conducive to mechanical harvesting. Varieties of cotton that produce plant and boll types that increased stripper efficiency and performance were readily accepted when Experiment Stations introduced them. Row widths of 40 inches were standardized. This width is generally accepted to be most ideal for both mechanical pickers and strippers.

Dependable defoliation, which is helpful even in these areas where frost usually occurs at about maturity date, remains as one of the problems yet to be solved. Much work is being done and a solution is bound to result.

Other areas are now exploring the possibilities of stripping cotton as the means of mechanically harvesting the crop. Many of the same problems that confronted the Plains farmers stand before them. Some of their practices and thinking must undergo the same changes, namely:

1. Plant in 40 inch rows.
2. Avoid sharp contours.
3. Closer plant spacing—two to four inches, which will control the size of plant and fruiting habit.
4. Good control of weeds and grass.
5. In last cultivation, ridge slightly at the base of the plants, leaving the middle about two or three inches lower. This will permit leaves to drift away from the plant and accumulate in the middles.
6. Defoliate when the crop appears to be ready to harvest in a week or 10 days.
7. Gins must be equipped to handle roughly harvested cotton.

We in the farm machinery industry are constantly working on ways and means of improving stripper efficiency and performance, but we must rely on the farmer and ginner to do their part as outlined above.

R. C. Fergason

Chief Engineer, Gadsden Works, Allis-Chalmers Manufacturing Company, Gadsden, Ala.

The problem of mechanically harvesting cotton has been a slow process of development since the first cotton harvesting device was patented over 100 years ago. This is partially due to several factors affecting the cotton crop such as fertility of soil, seed bed preparation, planting, cultivation, weed control, climatic conditions, gins, cotton plant characteristics, and lack of proper defoliants.

The fertility of the soil, the seed bed preparation, and climatic conditions affect the uniformity of stand and vigorousness of the cotton plant. With a uniform, closely spaced vigorous plant, weeds are easier to control because of shading the ground and the cotton plants will be inclined to produce a tall slender plant without large spreading lower branches. The bolls will be higher on the plant. The large spreading lower branches are not readily pulled together to pass through the picking unit tunnel, therefore some of the limbs are torn from the stalk. It is desirable to have the bolls as high from the ground as possible to allow the picker to get below the bolls, thereby improving the efficiency. The low bolls close to the ground become splashed with water and gritty soil in some localities, lowering the cotton grade and causing the lower spindles to wear.

When the cotton is "laid by" there should be a sharp ridge in the cotton row of low to medium height. The valley between the rows should be rounded and smooth. A crowned ridge in the row causes the picker to gather up more soil into the picking units and the gathering points cannot get under the low spreading branches as readily. The field should be free of large clods, stones, stumps or any objects that will damage the picker.

Grass and weeds affect the picker efficiency and lower the grade of the cotton sample. Improved gins with cleaners and driers improve the cotton sample and are very necessary for machine picked cotton. Lack of improved gins in some areas will have a definite influence on the adaptation of the mechanical picker.

Climatic conditions affect the plant characteristics and have a decided influence on insect control, defoliation, and cotton grades. Extremely dry weather without irrigation stunts the plant. As a result hard lock bolls are produced that are very difficult for a picker to gather and are shattered to the ground, lowering

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the picker efficiency. Recent improvement in defoliation and its adaptability has contributed in a large measure to the success of mechanical pickers.

Because of the tremendous amount of influences and conditions that affect the growing and manufacture of cotton and by products it has required much development, tests, and data to coordinate these problems and make a workable program for mechanically harvesting cotton.

Wayne C. Liles

Tillman County Agent, Frederick, Okla.

Cotton production is the last stronghold of hand labor on the farm. The cotton producer has sat by with envy while the wheat farmer, the corn farmer, and even the small miscellaneous farmer have had machinery perfected to where very little, if any, hand labor is necessary to perform all the tasks of crop production.

While the farmer has sat by with envy, he has not sat by idly. In 1926 I saw the forerunner of the cotton strippers now used by farmers. We had a large crop that year, cotton was cheap, labor high, and scarce, so the crude sleds were constructed and used. The cotton gathered was a ginners' nightmare and the samples turned out were probably spinners' nightmares.

A few men could not get the idea of harvesting cotton mechanically out of their heads. They plugged along even when the depression made cheap labor and plenty of it. Most every one else forgot about mechanical harvesting because the emphasis was on more jobs for idle hands.

Then came World War II. Scarce high priced labor again plagued the cotton farmer. He was again ready for mechanical harvesting. The shortage of steel and other materials for construction and especially experimentation made machinery hard to get. So he went back to struggling along using women and children, P.O.W.'s and others who could pull only small amounts, but somehow got the cotton out.

Again, as in the past few years, the cotton farmer is caught in the squeeze between high priced labor and scarce labor. He is in a better position now than ever before to cope with the situation, thanks to the men who would not give up on mechanical harvesting ideas and the Beltwide Cotton Mechanization Conference, sponsored by the National Cotton Council. All ideas have been brought together, sifted, passed on to machinery dealers, experiment stations and farmers to develop and improve.

Farmers are interested in mechanical harvesting. Last year we held a Mechanical Harvesting Field Day in Tillman County at which 1,000 farmers attended. This was more farmers than were growing cotton in the county that year. We had two plots for demonstration, one located 2½ miles east of Tipton, on sandy land which was below average fertility of the county. The height of the stalks averaged about 18 inches. Two types of strippers were used, the roller type and the stationary finger type. No difference was noted in waste of cotton between these two types. The cotton was stripped cleaner off the field than with hand pulling. The mount of waste would average about one lock per 100 feet in the row.

The other plot was 6½ miles east of Davidson on land that was above average fertility for the county. The height of the stalks averaged 36 inches. Here it was a different story: the stationary finger type machine wasted much more than the roller type machine and both machines wasted more than they should. Below are listed the results of this plot:

Lankart 57
2.07 acres
4,050 lbs. bolls machine harvested
500 lbs. picked up after machine
4,590 lbs. total harvested
1,730 lbs. seed
592 lbs. lint
475 lbs. lint
1,067 lbs. total lint
515 lbs. lint per acre yield
Bales graded Map (light) 15/16
Map (light) 29/32

Stormproof No. 1
1.73 acres
1,900 bolls machine harvested
634 lbs. bolls picked up after machine
2,534 lbs. total harvested
730 lbs. seed
602 lbs. lint
348 lbs. lint per acre
Bales graded Map (light) 15/16
Type of land—Enterprize loamy very fine sand

There were a number of factors that contributed to the high percentage of cotton left in the field. First, the large stalks do not make stripping as easy as on smaller stalks. Second, we defoliated two weeks before average frost date but due to dry weather it did not frost, but a late hard freeze came first. This killed the entire cotton stalk and made it brittle and easy to break off. Third, with 1,000 people milling around the plot many bolls were broken off. The fourth factor in waste was the tractor. No shields of any kind were on the tractor, stripper or trailer. The tall cotton, almost lapping in the middle, was run over by some of the wheels. On large cotton, shields are a must on all wheels to lift the branches out of the way.

Problems that confront the mechanization of cotton from a stripping point of view are: first, to breed a small, short branched, quick fruiting, early variety, stormproof cotton. This seems a large order, but it is no greater than the wheat breeders trying to get a strong strawed, quick even maturing, insect and disease resistant, shatterproof, and high yielding wheat.

Develop a defoliant that will work under dry conditions found in most of the southwest—one that will shed enough leaves so that harvesting can be done before frost. I feel that chemists can find this much easier than the plant breeders or the machinery manufacturers can perfect their products.

Develop a machine that can be used over a wider variety of conditions. Most of the machinery has been developed to date to use after frost. A part of development should be directed to pre-frost harvesting and to machines that do not leave cotton in the fields.

The task requires the cooperation of all concerned. The National Cotton Coun-

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cil has taken the lead in bringing all ideas together. If complete mechanization comes it will come in the next few years. The rate depends on all of us. The county agent needs to see that the farmers are informed on all new developments. Experiment Stations need to develop and test better stripper cotton in cooperation with the plant breeders. Machinery manufacturers need to step up their stripper improvements so as to develop a machine that leaves less cotton and more trash in the fields. Ginners are installing new machinery all the time to do a better job. They should continue to do this and look for new ways to improve ginning of stripper cotton. The job is a big one but we can do it.

Second Quality Report:

Grade Same as 1950 But Staple Shorter

Continuing the trend shown in ginning reports up to Oct. 18, USDA has announced that the average grade of upland cotton ginned in the U.S. prior to Nov. 1 this year was the same as that ginned to the same date last year but the staple length averaged somewhat shorter.

Cotton ginned prior to Nov. 1 this season averaged 32.7 thirty-seconds inches in staple length compared with 33.1 a year ago. Weather conditions during the last half of October were generally favorable for the maturity and harvesting of cotton over most of the Belt.

The 10,021,664 bales of cotton ginned prior to Nov. 1 were about 55 percent larger than a year earlier and were equivalent to 64 percent of the indicated 1951 crop of 15,681,000 running bales. The supply of upland cotton (carry-over Aug. 1, 1951 plus ginnings prior to Nov. 1) totaled 12,052,700 bales compared with 13,194,200 a year ago.

• **Grade Index the Same** — The grade index of upland cotton ginned prior to Nov. 1 was 97.1 (Middling White equals 100), or exactly the same as for a year earlier. The five-year average grade index for ginnings prior to Nov. 1 is 97.7. Grade index of cotton ginned during the last half of October is 95.8, which is considerably below the 96.7 for the same period a year ago and slightly below the 96.1 for the first half of October this year. The relatively high grade of cotton ginned prior to Nov. 1 from this year's large crop as compared with the small crop of a year ago is probably accounted for by the favorable weather for harvesting which prevailed over most of the Belt during that period.

• **Spotted and Other Colored Cotton**—Spotted and other colored cotton comprised 10 percent of ginnings prior to Nov. 1 this year, or about the same as a year ago. During the last half of October this year ginnings of these colored cottons comprised 15.4 percent of ginnings during this period, or considerably less than 21 percent during the same period last year.

• **Rough Preparation**—Only 1.2 percent of the cotton ginned prior to Nov. 1 was reduced in grade because of rough preparation as compared with 4.9 percent to the same date a year ago. During the last half of October only 0.7 of one percent of the cotton ginned was reduced in grade because of rough preparation. The extremely small percentage of rough preparation this year is probably accounted for by the dry hot weather which has prevailed throughout most of the Belt during the current harvesting season.

• **Average Staple Length Shorter**—Average staple length of upland cotton ginned prior to Nov. 1 was 32.7 thirty-seconds inches. This compares with the record length of 33.1 for cotton ginned prior to Nov. 1 last year. The shorter staple this year is probably accounted for by the extremely hot dry weather during July and August over much of the central and southern sections of the Belt. The average staple length of cotton ginned during the last half of October was 32.9 thirty-seconds. This was longer than the average of 32.8 thirty-seconds for the last half of October last year. The average staple length of the supply (carry-over plus ginnings through Oct. 31) was 32.9 thirty-seconds this year as compared with 33.0 for the corresponding period last year.

• **Tenderable Cotton**—Cotton tenderable on futures comprised almost 90 percent of ginnings to Nov. 1, 1951 as compared with 88.6 percent a year earlier.

• **Total Ginnings**—Cotton ginned prior to Nov. 1, 1951 totaled 10,021,664 bales. This compares with ginnings to the same date last year of 6,465,490 bales. American-Egyptian ginned prior to Nov. 1 this year totaled 10,970 bales as compared with ginnings of 16,539 bales to this same date last year.

USDA Will Make Service Tests of Foreign Seeds

USDA has announced that the Production and Marketing Administration is now prepared to make service tests of samples of seed received from a foreign country or of seed to be shipped to a foreign country. Fees will be charged to cover the cost.

The new service will include making available complete results of tests of samples of seed for any combination of the factors of germination, purity and noxious weed seed content. It is being inaugurated as a result of requests over a period of years by seedmen who engage in foreign commerce.

• Exhaustive fiber and spinning tests completed by USDA for the Delta Council show that the 1951 Yazoo-Mississippi Delta cotton crop has proven to be of the highest tensile strength and quality on record.

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The New
1 h.p. 2-Speed

ACE GIN BLOWER

To prove that the ACE Gin Blower

Cleans faster and better
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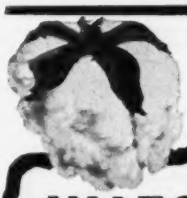

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The tremendous popularity of Watson cotton has made it impossible to supply all of our fine friends who would like to plant this high yielding, profit-making cotton. If you are not able to get Watson cotton this year, make it a point to get your order in early for next season because it is the most profitable cotton you can plant.

3 Great Varieties to choose from

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CALENDAR

Conventions • Meetings • Events

• November 29-30—Eighth Annual Spinner-Breeder Conference, Clemson, S. C. Sponsored by Delta Council, Stoneville, Miss.

• December 4-5 — Fifth Annual Insect Control Conference. Peabody Hotel, Memphis, Tenn. For information, write Claude L. Welch, National Cotton Council, P. O. Box 18, Memphis 1, Tenn.

• Dec. 6-7—Conference on chemical weed control. King Cotton Hotel, Memphis, Tenn. Sponsored by the National Cotton Council of America, P. O. Box 18, Memphis 1, Tenn.

1952

• Jan. 28-29 — National Cotton Council of America annual meeting. Roosevelt Hotel, New Orleans, La. Wm. Rhea Blake, P. O. Box 18, Memphis 1, Tenn., executive vice-president-secretary.

• Feb. 11-12 — Texas Cooperative Ginners' Association annual meeting. Rice Hotel, Houston, Texas. E. M. Cooke, Georgetown, Texas, secretary-treasurer.

• March 3-4—Oklahoma Cotton Ginners' Association annual convention. Skirvin Tower Hotel, Oklahoma City, Okla. J. D. Fleming, 1004 Cravens Bldg., Oklahoma City 2, Okla., secretary-treasurer.

• March 10-11-12 — Annual conventions of Arkansas - Missouri Ginners Association and Tennessee Cotton Ginners' Association, to be held in connection with Midsouth Gin Exhibit, Memphis, Tenn. W. Kemper Bruton, Blytheville, Ark., executive vice-president, Arkansas-Missouri association; W. T. Pigott, Box 226, Milan, Tenn., secretary - treasurer, Tennessee association.

• March 24-25—Valley Oilseed Processors Association annual convention. Hotel Buena Vista, Biloxi, Miss. C. E. Garner, 1024 Exchange Bldg., Memphis 3, Tenn., secretary.

• March 30—National Cotton Ginners' Association annual meeting. Baker Hotel, Dallas, Texas. Carl Trice Williams, P. O. Box 369, Jackson, Tenn., secretary-treasurer.

• March 31, April 1-2 — Texas Cotton Ginners' Association annual convention. Fair Park, Dallas, Texas. Jay C. Stilley, 109 North Second Ave., Dallas 1, Texas, executive vice - president. For exhibit space, write R. Haughton, president, Gin Machinery & Supply Association, P. O. Box 444, 3116 Commerce St., Dallas 1, Texas.

• May 12 - 13 — Oklahoma Cottonseed Crushers' Association annual convention. Lake Murray Lodge, Ardmore, Okla. J. D. Fleming, 1004 Cravens Bldg., Oklahoma City 2, Okla., secretary-treasurer.

• May 19-20-21 — National Cottonseed Products Association annual convention. Roosevelt Hotel, New Orleans, La. S. M. Harmon, Sterick Bldg., Memphis 3, Tenn., secretary-treasurer.

• May 26-27-28 — Fifty - eighth annual convention, National Oil Mill Superintendents Association. Rice Hotel, Houston, Texas. H. E. Wilson, Wharton, Texas, secretary-treasurer.

• June 2-3—Sixth joint annual convention, Georgia Cottonseed Crushers Association and Alabama-Florida Cottonseed Products Association. The General Oglethorpe Hotel, Wilmington Island, Savannah, Ga. J. E. Moses, 318 Grand Theatre Building, Atlanta 3, Ga., secretary of Georgia association; T. R. Cain, 310 Professional Center Bldg., Montgomery 4, Ala., secretary of Alabama-Florida association.

• June 3-4-5—Tri-States Oil Mill Superintendents' Association annual convention. Hotel Buena Vista, Biloxi, Miss. L. E. Roberts, 998 Kansas, Memphis 5, Tenn., secretary-treasurer.

• June 8-9-10-11—North Carolina Cottonseed Crushers Association-South Carolina Cotton Seed Crushers' Association joint annual convention. The Cavalier, Virginia Beach, Va. Mrs. M. U. Hogue, P. O. Box 747, Raleigh, N. C., secretary-treasurer, North Carolina association; Mrs. Durrett Williams, 609 Palmetto Bldg., Columbia 1, S. C., treasurer, South Carolina association.

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Pure vegetable shortening . . . Emulsorized for quick-method cakes . . . makes digestible, good-tasting fried foods.

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Bleckley County Farmers Win 5-Acre Prizes

Producing 14,747 pounds of seed cotton on five acres, L. L. Phillips and E. H. Wemberly, Bleckley County farmers, are winners of the south central Georgia district Five-Acre Cotton Contest for 1951.

Another Bleckley countian, J. W. Trunnell, is winner of second prize in the district, and third prize goes to M. S. Kirkland, Cook County.

Mr. Phillips and Mr. Wemberly receive $250, Mr. Trunnell $150 and Mr. Kirkland $100 as prizes. The state winner in the contest, who receives a $500 award, is to be named at ceremonies in Atlanta Dec. 13. Prizes are given by the Georgia Cottonseed Crushers Association, sponsor of the contest on a state-wide basis.

Mr. Trunnell, a former state champion in the cotton contest, grew 14,568 pounds of seed cotton on five acres. With a 125-acre cotton crop this year, he produced 135 bales.

Third prize winner in the district, M. S. Kirkland, grew 12,357 pounds of seed cotton on the five-acre tract. He planted 30 acres of cotton this year, but he usually produces around five acres yearly. His yields average around a bale per acre.

white gold . . . mechanized!

A large percentage of today's cotton crop is handled from the plant to the cotton gin and thence to the finished bale without ever having been touched by human hands.

This requires the present-day cotton ginner to stay abreast of the times with new gin machinery, cleaning and drying equipment, more power, and all the other necessary auxiliary equipment.

The cotton ginning and oil milling industries represent an invested capital of $750,000,000 . . . approximately ten percent of which is spent each year for new equipment, replacements, and repairs.

Here is a field that offers you a wonderful market for industrial machinery, power units, processing equipment, transmission machinery, insecticides, bags and bagging, and countless other products and services.

The Cotton Gin and Oil Mill Press serves this market from California to the Carolinas, and is the *official* publication for the National Cottonseed Products Association (oil mills), the National Cotton Ginners Association, and *every* state ginners association.

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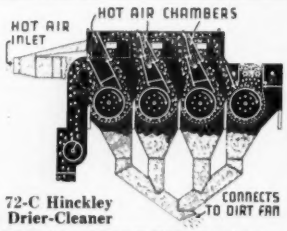

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Spinner-Breeder Program Plans Are Announced

Announcing additional program plans for the Eighth Spinner-Breeder Conference, scheduled for Clemson, S. C., Nov. 29 and 30, Delta Council Advisory Research Committee Chairman George B. Walker said that topics for discussion at the meeting would be of particular importance to cotton producers, textile manufacturers and members of the cotton trade.

The subject of "Neps," which has been of great concern to mill men during recent years, will be covered at the conference by Elliot B. Grover, head, Department of Manufacturing, North Carolina State College School of Textiles, Raleigh. "Textiles Magnified—Their Significance in Producing and Supplying Mill Needs" will be presented by T. L. W. Bailey, assistant to the director of research, Institute of Textile Technology, Charlottesville, Va. In addition two panel discussions will feature key figures in the textile industry, along with cotton breeders, producers and technicians.

Graves Jones of the New England cotton firm of Jones, Gardner & Beal, Providence, R. I., will act as moderator for a panel discussion on "Fiber and Spinning Quality in 1951." Harry B. Caldwell, master, North Carolina State Grange, will be moderator for a panel discussion of "Cotton Consumption Prospects, Needs and Influencing Factors."

Clemson College and the South Carolina Textile Manufacturers Association will act as hosts for the two-day meeting, which is expected to attract delegates from throughout the cotton producing and manufacturing areas of the nation.

California Takes Second Place as Cotton State

With publication of the Nov. 1 cotton production estimate of the U.S. Crop Reporting Board, it appears that California has moved into second place as a cotton producing state.

The Nov. 1 forecast held to the Oct. 1 estimate of 1,800,000 bales for California, one of four states in which expected production did not drop from the previous estimate, while the latest forecast for Mississippi, previously tied with California, was reduced to 1,650,000 bales. California is thus second only to Texas in estimated cotton production this year.

As of Nov. 1, 658,090 running bales had been ginned in California, about 45 percent of it during the last 14 days of October.

Castor Bean Harvestor

Sixty castor bean harvesters based on a design developed at the Oklahoma Agricultural Experiment Station, Stillwater, are being used in Oklahoma and Texas this fall. The prototype machine upon which those in use are based is described in a new bulletin, No. B-376, issued by the station.

• The amount of food that the average American ate last year was 11 percent more than in 1935-1939. About 85 percent of the food produced in the U.S. in 1950 was consumed in this country.

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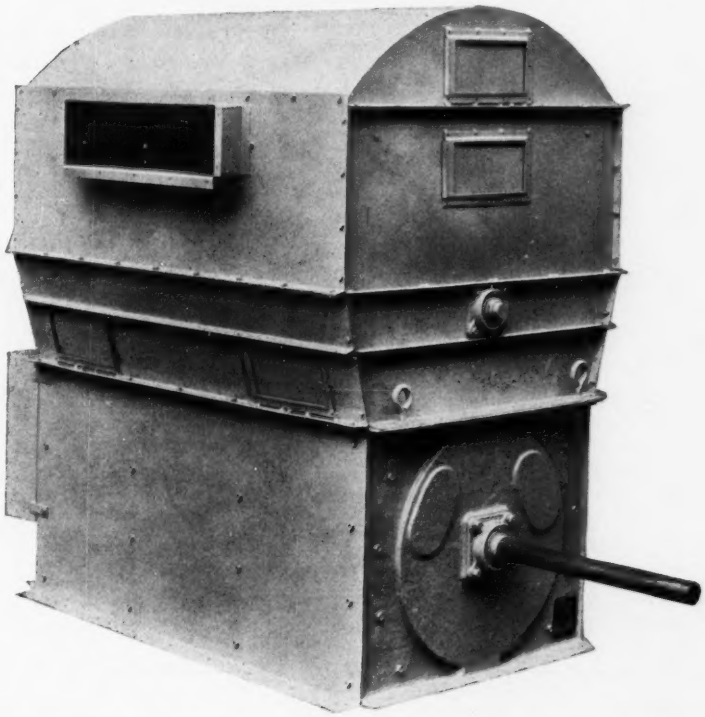
Trouble Free



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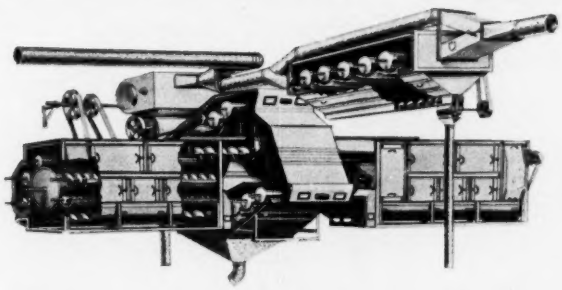

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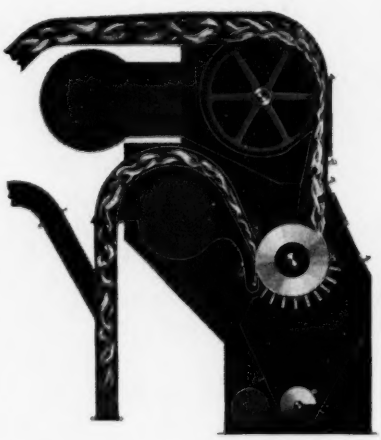

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